Proposed Revisions to Partial Consent Decree
Based on Review of Public Comment

Issue	Comment	Notes/Recommentations
1. Jurisdiction State/Federal Injunctive Relief	EPA No. 1	. Include §107 CERCLA . Amend CECRA claim in 75-10-705, MCA.
2. Clarification of appropriate standards for review (ARARS)	EPA No. 2	. Include in Exhibit II and Partial Consent Decree provision requiring identification of Universe of ARARS/ appropriate standards and comparing alternatives against ARARS/ appropriate standards.
3. Permits/ State/Federal Sources	EPA No. 2	. Include permit waivers authored by State law CERCA. . Take up RCRA issue after remedial investigation report received and accepted.
4. Include public participation provision	EPA No. 3 City Comment No.14 MEIC Comment I	. Include public participation provision, include provision for public review of modifications and submittals.
5. Clarify recovery of dispute resolution costs	EPA No. 5 City Comment No.1	. Remove lanugage concerning successful dispute resolution, rely on general definition of response cost and remedial action costs in state and federal law.
6. Clarification of covenant not to sue	EPA No. 6 MEIC Comment F	. Change tense of verbs provide exclusion for hidden or latent defects

7. Objection to binding arbitration	EPA No. 7 MEIC Comment B LIFE Gen.Comments	. Delete binding arbitration, revert to language April 11, 1989 letter which allows State to rely on other appropriate remedies if dispute concerning remedy exists, following negotiations.
8. Identify decision maker responsible for approvals, dispprovals dispute resolution decisions.	EPA No. 8 MEIC Comment F	. Designate Director as final decision maker for purposes of review.
9. Approval timeframes/automatic approvals	City Comment No.10 MEIC Comment F	. Clarify submittal review to provide for 30-day deadline if Dept. has sufficient resources, and submittal is not grossly deficient . Delete automatic approvals.
10. Process for implementation of the remedy	EPA No. 12	. Revise process for remedy implementation to be pursuant to negotation/or available state and federal law.
11. Clarify use of corrective action, plan	City Comment No.7 MEIC Comment G	. Revise corrective action to be emergency action to distinguish it from §29.
12. Scope of Release provision re: negligent and hidden defects	City Comment No.12 MEIC Comment F	. Clarify that release for work performance does not include hidden defect or defects which could not have been reasonably discovered.
13. Clarify disclaimer provision	MEIC Comment D	. Substitute disclaimer language from UST Order with BN, October, 1988.

14. Clarify if cleanup will go beyond site	City Comment No.6	. Use definition of impacted areas and add to Decree in appropriate places.
15. Exclusion from release city and other governmental entities	City Comment No.13	. Include definition of "persons" from CERCLA and CECRA into decree.
16. Standard for judicial review of Dispute Resolution.	City Comment No.11	. Change "or" to "and"

LIVINGSTON PARTIAL CONSENT DECREE
COMMENTS AND RESPONSES BY DHES

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EPA

COMMENT 1.: Jurisdiction. "Because EPA believes that the State can only seek independent injunctive action under its mini Superfund Law, the Decree should only contain standards and technology referenced by that law."

RESPONSE: Comment accepted. The jurisdictional section should also reference §107 of CERCLA, 42 USC, §9607 where there is no dispute that federal jurisdiction exists. The Department disagrees with EPA that the State can seek independent injunctive action only under its mini Superfund law (CECRA, §75-10-705, MCA). The complaint contains pendent State claims for water quality and nuisance which have injunctive remedies. The complaint will be amended to also assert a claim under the mini Superfund Law, §75-10-705, MCA.

COMMENT 2. "The Consent Decree does not appear to explicitly acknowledge, and the process described for these actions does not appear to address, the need to identify and comply with applicable or relevant and appropriate environmental requirements, criteria, or limitations for actions." (ARARS) (RCRA). Permitting. The process identified in the decree should specifically provide for the clear identification and such requirements and the application of such requirements to the proposed cleanup. (RCRA - regulated waste)

RESPONSE: Comment accepted. The ARARS comment is correct although EPA and other commentors fail to appreciate the unique posture of this Partial Consent Decree which is entered into prior to the feasibility study. Typically, consent decrees set forth the final remedy and how ARARS are addressed, identified and complied with. This Partial Consent Decree focuses on issues prior to that selection process.

Permitting, comment accepted. For purposes of clarity, a provision will be added providing that BN may apply to the State for waivers for on site cleanup. Any permit exemption/waiver may be made by the Department under applicable law. Such a provision would not constitute an automatic permit.

COMMENT 3: Public participation requirements must be specified in the Partial Consent Decree.

RESPONSE: Comment accepted. DHES has established and will supplement all existing data reports concerning contamination in studies at the site by filing them at the repository for public documents at the Park County Library in Livingston, Montana. Further, all reports such as the remedial investigation report, feasibility study report actions and work plans implementing significant remedial measures not covered by Exhibit I shall be subject to public review and comment prior to implementation.

COMMENT 4: "It is unclear whether there will be screening of potential remedial alternatives prior to detailed analysis. What criteria will be used for screening and what criteria will be used for the detailed analysis."

RESPONSE: Comment accepted. There will be screening of potential remedial alternatives prior to a detailed analysis. Again, this will be addressed in a feasibility study. The amended decree will provide for the screening of potential remedial alternatives prior to detailed analysis as determined by the State. This process will be implemented through a feasibility study, approved by the State.

The purpose of the interim measures work plan is to define the nature and extent of contamination at this site, as well as to complete initial treatability studies for discreet known contamination. The next step, The Feasibility Study (FS) will evaluate various options for the remediation of the contaminants. More site specific goals of the Feasibility Study will be set forth in the FS. A public health assessment will be completed prior to completion of the Feasibility Study, according to guidance set forth by EPA. Once the FS is completed, MDHES will select remedies for the site. Once the remedies have been selected, and after public comment is addressed, the long-term remediation process will be set forth.

COMMENT 5: The State waives its ability to collect costs expended in pursuing dispute resolution unsuccessfully.

RESPONSE: Comment accepted. Given the broad definition of remedial action costs and response costs under both State and Federal law, all such dispute costs should be recoverable. The reference which EPA objects to will be deleted.

COMMENT 6: Covenant not to sue appears to apply immediately.

RESPONSE: Comment accepted. More clarity could be achieved through the use of future tense verbs rather than past tense verbs. Those changes for clarification will be made. The State will be responsible for a thorough and careful review prior to

that approval. Such approval will not preclude later actions for latent or hidden defects which could not have been discovered by reasonable inquiry at the time of inspection.

COMMENT 7: Objection to binding arbitration in the selection of remedy.

RESPONSE: Comment accepted. DHES disagrees that the use of alternative dispute resolution somehow waives the sovereign power of the State to select the remedy, the State will delete any reference to binding arbitration. If the purpose of CERCLA is to avoid thrusting costs of cleanup upon the taxpayers, it seems that early resolutions prior to unnecessary expenditures of funds which may be non-recoverable by the state should be pursued. Litigation involving the final remedy may also significantly delay final cleanup. The amended decree should allow the State - Director to select the appropriate remedy with resort to existing state and federal law if negotiations are unsuccessful.

COMMENT 8: The individual within the State who makes the final decision should, during dispute resolution process, be identified by position with State government.

RESPONSE: Comment accepted. The Director of the Department of Health will make the final determination during dispute resolution which shall be a final order for purposes of review.

COMMENT 9: All "documentation" is too broad for response costs.

RESPONSE: Comment accepted. Insert "or appropriate summaries of extensive documentation which will be supplemented only if the issue is disputed by the BN."

COMMENT 10: Clarify time frame language for DHES review.

RESPONSE: Comment accepted. The State has an obligation to timely respond to requests made by the responsible party. Having an on site coordinator with authority to make on site adjustments to the work plan should expedite many time frame issues. (See regulatory framework, Part 3 Work Plan) Given the difficulty in adopting a general rule for time turnarounds, the Partial Consent Decree should provide a 30-day turnaround unless the State has insufficient resources or the submittal by BN is grossly deficient. There will be no automatic approvals in the amended decree.

COMMENT 11: Objection to Stipulated Penalties.

RESPONSE: Comment rejected The levels of stipulated penalties are in most instances greater than in U.S. v. Champion, (89-127).

TIER I

Penalty Period	Livingston	EPA-Champion
14 days	$ 17,500	$ 28,000
30 days	107,500	92,000
60 days	407,500	272,000

TIER II

14 days	$ 17,500	$ 56,000
30 days	107,500	184,000
60 days	407,500	484,000

COMMENT 12: Date implementation in §7.D. is uncertain.

RESPONSE: Comment Accepted. The remedy shall be implemented either through good faith negotiations or via existing state or federal authority.

CITY COUNSEL COMMENTS

COMMENT 1: Scope of Response Costs, Section 4.H., Page 10. The State should clarify whether the defendants will provide financial resources to the State "up front" (before remedial work is undertaken) for monitoring and overseeing the defendants' work. If the defendants have made this commitment, does the Partial Consent Decree identify the specific dollar amounts that defendants will pay and the dates by which the amounts will be paid?

RESPONSE: The payment of past response costs and penalties will provide up-front money for interim technical monitoring and oversight prior to court approval of the Partial Consent Decree. The payment of the $1,000,000 by January, 1992, will combine sufficient funding for response costs prior to quarterly reimbursement under the Decree.

COMMENT 2: Enforceability, Section 5. F., Page 12. The State should clarify whether the first and third sentences of this section are self contradictory. In the first sentence, defendants represent that they will not challenge the decree's factual or legal determinations in an action to enforce the Partial Consent Decree. In the third sentence, defendants nullify this representation when they reserve any and all defenses in an action to enforce the Partial Consent Decree.

RESPONSE: Comment accepted. (Source, page 8, UST Order) DHES will substitute the disclaimer from the UST Order with Burlington Northern reached in 1988 for purposes of clarity. See also our response to Comment 2, to EPA, ARARS and RCRA.

"Defendants further and completely and voluntarily waives its rights to and agrees not to 1) challenge jurisdiction or (the essential facts that create jurisdiction) or authority of the Court to issue or enforce this consent decree: 2) contest the validity or enforceability of any and all provisions, terms and conditions of this consent decree, or 3) appeal the issuance of this consent decree.

Subject to the provisions set forth above, nothing in this Consent Decree shall be construed as an admission of liability by respondent nor as a limitation or restriction or waiver of any arguments or challenges which Defendants may have regarding the proper interpretation or construction of the provisions, terms and conditions of this decree.

Moreover, Defendants' agreement to comply with provisions, terms and conditions of this Decree as set forth above does not constitute admission or acknowledgment as to any factual assertions, legal conclusions, determination or notices contained in this Decree. This Consent Decree shall not operate as an admission by or as a binding precedent on Defendants as to any factual assertion or legal conclusion outside of the context of the proceedings to interpret or enforce this Consent Decree. Moreover, the parties agree that this Decree shall not be admissible or used as evidence in any proceeding other than a proceeding to enforce or construe the provisions of this Decree."

COMMENT 3: Requirements for Remedial Investigation Report and Feasibility Study, Section 6. B., Page 13. The State should identify the provisions of the Partial Consent Decree which clearly and unambiguously define the scope and details of the Remedial Investigation Report and the Feasibility Study. Does the State wish to incorporate into Section 6. B., the requirements of the proposed National Contingency Plan, 52 Fed. Reg. 51474 (Dec. 21, 1988)?

RESPONSE: DHES disagrees with the need to further clarify the scope of the Remedial Investigation Report which we believe the work plan clearly indicates is to be an ongoing, thorough investigation of the scope and extent of the contamination at the Livingston Facility and impacted areas. The feasibility study process has been amended to address the concerns of the EPA. It is premature at this point in the process to describe every detail of a feasibility study prior to receipt of the final Remedial Investigation Report. In carrying out the Remedial Investigation Report and feasibility study on the Livingston facility BN will use the National Contingency Plan for guidance as appropriate. There are, no doubt, certain aspects of those regulations which will not apply or for which there are logical reasons to deviate. It remains the State's choice to accept the Remedial Investigation Report and

Feasibility Study Report and revisions may be required.

COMMENT 4: Cleanup at Mission Wye, Section 6. E., Page 14. The State should identify the criteria which will be examined to determine whether a "cleanup" at Mission Wye is °necessary." Who will determine whether a cleanup at Mission Wye is necessary? The State should identify the provisions of the Partial Consent Decree which set forth the cleanup standards and scope of any "cleanup" at Mission at Mission Wye.

RESPONSE: This comment is premature. Further action will be decided after the R/I Report at Mission Wye.

COMMENT 5: Feasibility Study and Performance of Remedy at Mission Wye, Section 6. G. Page 15. The State should clarify whether the defendants are required to (1) finance and conduct a Feasibility Study at Mission Wye, and (2) pay for and perform the remedy at Mission Wye. If the defendants have these obligations, the Director should identify where these obligations are imposed and defined.

RESPONSE: It is clear from the Partial Consent Decree, Part 5. B. on page 11, that all costs from the date of the approval of the Consent Decree are to be borne by BN. The comment is premature and will be addressed after the receipt of the R/I Report on Mission Wye.

COMMENT 6: Areas Covered by Remedy, Sections 7. A. and 7.D. Pages 15-1. The State should clarify whether "selection and implementation of the remedy at the Livingston Facility" is limited to the boundaries of the site, as defined in Section 3, L., or also covers the impacted area. Should the State expand the definitions of "Livingston Facility" and "Mission Wye Facility" to include ancillary areas and any and all lands impacted by releases from the Livingston and Mission Wye sites?

RESPONSE: Comment accepted. Impacted areas as defined will be added to the partial consent decree where appropriate.

COMMENT 7: Condition triggering correction action plan. Section 9, page 18. the state should clarify whether the requirement to develop and submit a corrective action plan is limited to only those releases which pose "an imminent threat to public health, welfare or the environment" and require an "immediate response." will corrective action be taken for previously undiscovered releases that do not present an imminent threat?

RESPONSE: Comment accepted. Corrective Action is replaced by Emergency for clarification. §9 AND §29 must be considered together with §9 being the more specific work plan oriented response authority and §29 being the more generalized approach to remediation that has not been undertaken despite request.

Under §29, if corrective action has not been undertaken for previously undiscovered releases, even though it has been requested by the State, the State may implement such corrective action and require the railroad to pay the cost. S.B. 355, Chapter 704, Laws of Montana, 1989, is additional authority to require action by the responsible party.

COMMENT 8: Natural Resource Damage Assessment at Livingston Facility, Section 11. F., Page 24. The State should clarify whether the defendants are required to perform the natural resource damage assessment at the Livingston Facility. Does the Partial Consent Decree identify the specific components and details of that assessment? Do the dispute resolutions provisions of Section 14 cover any dispute that may develop concerning the assessment of natural resource damages at the Livingston Facility? (apparently not - See §14)

RESPONSE: Comment accepted, but see Part 5 B of the decree indicating that the railroad is responsible for all costs from here on out. The State will perform the assessment, the railroad will pay for the cost. See also letter of April 11, 1989, attached. Dispute resolution will be available for natural resource damage assessment.

COMMENT 9: Site and Information Access, Sections 10, 12 and 15. The State should clarify whether the defendants will timely make available to the City of Livingston any and all data, reports and other information regarding the Livingston Facility and Mission Wye Facility. Under the Partial Consent Decree, will the City of Livingston (including its attorneys and consultants) have unrestricted access to the Livingston and Mission Wye Facilities so that it can monitor and inspect any and all activities (including sampling) which are conducted pursuant to the Partial Consent Decree?

RESPONSE: Comment accepted. The Director has made all final documents available to the City of Livingston. Access and sampling will be at the Director's sole discretion. Site access is also subject to Rail Link/LRC approval.

COMMENT 10: Dispute Resolution, Section 14. A., Page 28 (Last Line). The State should clarify whether it waives its right to disapprove or modify a plan if it fails to respond to a submittal by the deadline set forth in this section. Has the State assumed an unreasonable and unnecessary burden by agreeing to this provision? Isn't there a substantial risk that the State may inadvertently miss a deadline and lose the opportunity to modify a proposal which it considers inadequate? (better to treat silence as disapproval)

RESPONSE: Comment accepted. See response to EPA. We will modify this provision to exclude automatic approval.

COMMENT 11: Standard of Review, Section 14. C., Page 30. The standard for reviewing the State's action should be whether, it is "arbitrary, capricious and not supported by the record."

Putting the two tests in a disjunctive ("or") expands the scope and standard of judicial review.

RESPONSE: Comment accepted. DHES suggest the provision be changed to "and", but see §75-10-711(7), MCA, ("or otherwise not in accordance with the Law").

COMMENT 12: Scope of Release, Section 20, A. 1., Page 42. The State should clarify whether it has reserved its rights to pursue a claim against defendants if it subsequently learns that work which the defendants performed (and which the State approved) is defective.

RESPONSE: Comment accepted. See Comment to EPA release, Comment 6. DHES will clarify that the work performance inspection will be a limited approval to that which is reasonably attributable to a thorough inspection reserving rights for hidden or latent defects.

COMMENT 13: Exclusion from Release, Section 20, C. 1., Page 43. With respect to §20, C. 1., the State should clarify that the term "person" includes the City of Livingston. The State may wish to rephrase §20, C. 1., as follows: "A claim by any person or entity (including the City of Livingston) other than the parties to this Partial Consent Decree . . . "

RESPONSE: Comment accepted. Both CERCLA and Chapter 709, Laws of Montana, 1989, define "person" as including a municipality as well as any other governmental subdivision. We will include the definition of person in the definitional section of the Partial Consent Decree.

COMMENT 14: Subsequent Modification, Section 26, Page 47. The State should clarify whether amendments to the Partial Consent Decree will be subject to public review and comment.

RESPONSE: Comment accepted. Major changes will be subject to public review and court approval.

COMMENT 15: Surety for Performance, Section 28, Page 47. The State should (1) identify the specific conditions which would entitle it to obtain money under the surety provision; (2) identify the process for obtaining such money, and 3) create a standby trust for receipt of any forfeitures.

RESPONSE: Rejected. DHES believes the section cited in the Consent Decree is sufficient, given the PRP who is responsible for performance.

COMMENT A: Fines and Penalties - The fines are criticized for being insufficient, given the magnitude of pollution. Repayment of response costs are insufficient to cover the Department's out of pocket expenses. (Sources Warren McGee, TR p. 10, David Scrimm, TR p. 11-12, Claire Lemhke, TR p. 31, Jim Jensen, TR p. 75, Dan Porter, TR p. 39-41.)

RESPONSE: Response costs including largely undocumented in-house costs are approaching $600,000 as of June 30, 1989. This leaves a penalty of $500,000 of which $100,000 is suspended provided BN implements the cleanup process thoroughly, expeditiously and without unnecessary delay. This represents the largest penalty assessed by the department, the previous high being $170,000 for water quality violations in 1979, of which $100,000 was suspended.

COMMENT B: Mission Wye should have a specific timetable for the submission of its remedial investigation report and feasibility study as well as cleanup. (Source Scrimm written comments, LIFE)

RESPONSE: The Partial Consent Decree provides that within 45 days of court approval of the Partial Consent Decree, the railroad shall develop and submit a detailed and comprehensive work plan for the Mission Wye facility based on the elements specified in Exhibit 3. (Consent Decree, p. 13, Part D.) This work plan will be developed utilizing the same process implemented by the first work plan for the Livingston facility. First the Department will review and make comments on the work plan.

The approved work plan will be a public document available for review. Because the Mission Wye facility is not located near a population center; because little or no data is currently available on that site, the determination of additional study by the State will await the receipt and acceptance of the remedial investigation report. The Director will make a determination for further study.

COMMENT C: Request for Information. We request that these records, (Consent Decree, p. 33, Part 15, PP D), documents and information and raw data be made available to the City of Livingston or its designee.

RESPONSE: Comment accepted. This has been the practice of the State and will continue.

COMMENT D: Observation by the City of Livingston or its representatives and ability to take samples or split samples. (Source, David Scrimm, written documents, LIFE)

RESPONSE: The cleanup is being conducted under the direction and supervision of the State of Montana. Any access to the site and/or sampling will be at the State's discretion. Access to private property is at the discretion of the property owner.

COMMENT E: Paragraph G, p. 9, Partial Consent Decree, states that BN is liable for assessing natural resource loss or damage and makes no point of whether they will pay the actual damages themselves. This document must contain specific language as to who will pay natural resource damages, how they will be determined and what portion of the damages will be received by the City of Livingston (Source, David Scrimm, document p. 1, LIFE).

RESPONSE: This is a Partial Consent Decree. All issues are not determined. The natural resource assessment conducted by the State and paid for by BN will be conducted concurrently with the cleanup. It is an incentive to BN to conduct the best possible cleanup so that the natural resource damages will be lessened. It is premature at this point to determine how much natural resource damage will exist or how much will be received by the City of Livingston or the County. State law dictates that natural resource damages are paid to the State. See Chapter 704, Laws of Montana, 1989. The determination of the extent of natural resource damages will be based on the assessment and further negotiations or litigation. A restoration plan would be developed for any natural resource ddamages recovered.

COMMENT F: Does the Defendant's denial of responsibility or liability negate liability for natural resource damages as stated in Part 4, PP G? (David Scrimm document, p. 2, LIFE).

RESPONSE: No, their denial of liability is a standard disclaimer found in all partial consent decrees. The assessment which will be paid for by BN will provide additional evidence of natural resource damages and strengthen the State's position.

COMMENT G: We request that the State have two full time on-site coordinators. It is our understanding in the work plan that as many as seven crews may be conducting work simultaneously. This situation will make it difficult for one person to adequately monitor these activities. (David Scrimm document, p. 3, LIFE).

RESPONSE: The State will determine the number of on-site coordinators and employees based on the activity undertaken. Currently, there is pending a program change providing for 1.5 FTE.

COMMENT H: What are the provisions of §75-5-621, and §75-10-712, MCA?

RESPONSE: Those statues are attached. They provide additional authority for emergency responses by the State which may be implemented by the State on site coordinator.

COMMENT I: What is the purpose of Part 17. (David Scrimm document, p. 3, LIFE).

RESPONSE: This section provides that validated data is admissible in any legal action arising out of or related to the subject matter of this Consent Decree. Validated data has been defined in that section.

COMMENT J: There are two paragraph D's on pages 43 and 44.

RESPONSE: Comment accepted. We have corrected his typographical error as well as typographical errors on page 49, substituting section 13 instead of 14, and on page 10 I instead of K.

COMMENT K: Request that all amendments of this Consent Decree be made available to the City of Livingston prior to approval by the State.

RESPONSE: Comment accepted. Those amendments which the parties have agreed to will be submitted to the Court for approval. They will be made public prior to submission to the Court.

COMMENT L: What agency will monitor BN's financial standing to assure the State of BN's solvency? (David Scrimm document, page 3).

RESPONSE: Comment accepted. The State (DHES).

COMMENT M: We request the City of Livingston to be a party to the approval or disapproval of certification. (David Scrimm document, p. 3, LIFE)

RESPONSE: The State is responsible for the cleanup. The process of public input and review which has already been established is a sufficient check on the process.

COMMENT N: The State should pay the salary of a Livingston environmental engineer. (McGee, TR p. 11, ln 9)

RESPONSE: Third party rights including those of political subdivisions are not governed by the Consent Decree process. State support of third party experts could quickly expand the process to an unmanageable tangle of experts. Already, the defendants, the State and to some extent, the EPA are involved. Informal public input from both the City and the County is currently easily transmitted without lengthy detours through time consuming and expensive evaluations. The State will continue to solicit input on major decisions, both legal and

technical and will evaluate that input with responses as we have here with action taken where the State deems it is appropriate.

MEIC COMMENTS

(Montana Environmental Information Center (MEIC)

(Note: Many MEIC comments were also advanced earlier by EPA and The City of Livingston. To the extent the comments are similar. The earlier responses are incorporated.)

COMMENT A: The State does not comply with State and Federal Environmental Laws.

RESPONSE: DHES strongly disagrees with the Comment. The Consent Decree expressly provides in Part 5(D) that, "The Defendant shall not without complying with all applicable state and federal laws and obtaining prior state approval, implement a work plan, conduct a new program of monitoring or sampling or remedial action or undertake any corrective or interim remedial action. Further, on the covenant not to sue, Part 20(D), page 44 expressly provides "Defendants agree and nothing in this Partial Consent Decree shall limit Defendants duty to comply fully with all applicable federal, state and local environmental laws, regulations, standards and guidelines.

COMMENT B: The State has made serious and perhaps illegal concessions with regard to the Department's duty to protect the public's health, welfare and environment.

RESPONSE: DHES does not accept this unsubstantiated allegation. As noted above, the State retains control and approval authority before any work is undertaken. Any work must be undertaken in accordance with applicable state and federal law. We have modified the disclaimer of liability referred to MEIC Comment No. 12 and to that Extent we have accepted their comment. With regard to Comment 30, MEIC, the challenge of the remedy must be consistent with state and federal law. The MEIC is certainly aware of other court authority for a pre-implementation Declaratory Judgment. See State of Colorado v. Idarado and Rocky Mountain Arsenal v. Colorado, U. S. District Court of Colorado decisions. See also 19 Environmental Law Reporter, 10331 (1989).

With regard to MEIC Comment 38, the State has clarified the covenant not to sue, to provide for no release of negligent performance or hidden defects. To that extent the comment is accepted. Comment 41 is also addressed by the above change 38.

COMMENT C: (MEIC) Complains penalty level is too low.

RESPONSE: The complaint about the million dollar settlement has been addressed earlier. It is the largest penalty and is certainly very advantageous for the State to receive all of its

past response costs at the beginning of the cleanup and investigation activity rather than at the end.

COMMENT D: (MEIC) No admission of liability is in the decree.

RESPONSE: This comment has been responded to earlier as well. An admission of liability has not been required by either the Department or the EPA in preliminary and/or final consent decrees on environmental cleanups.

COMMENT E: Natural Resource damages not agreed to.

RESPONSE: The proposed Partial Consent Decree requires BN to fund a natural resource damage assessment. It is our position that the extent of natural resource damages can only be determined after completion of an assessment and after the best level of clean-up has been achieved or determined. Proposed partial consent decree language specifically states "nothing within this Partial Consent Decree shall be construed to relieve Defendants of:

1. Any liability for natural resource damages which may be assessed at the Livingston and Mission Wye Facilities.

COMMENT F: (MEIC) Dangerous Precedents.

RESPONSE: Comment has been accepted as far as a revision of the timetables for State review, although no work can be undertaken without State approval. Comment is disagreed with on the aspects of not following the legal requirements for cleanup which is expressly provided for in the Consent Decree. Further, we believe the Consent Decree is a model to encourage cleanup not only at other BN sites but by other polluters in the State.

COMMENT G: (MEIC) The document is criticized for being ambiguously worded.

RESPONSE: DHES disagrees with the Comment. Certain grammatical clarification changes have been made in view of the public comment to which the Department is sensitive. As stated earlier, environmental cleanup in this action as in all actions by DHES is dictated by state and federal law and expressly incorporated into the Consent Decree. Automatic approvals will be deleted.

COMMENT H: (MEIC) The decree does not present a process for quicker cleanup than that which appears to be going on in the federal realm.

RESPONSE: DHES disagrees. There are numerous opportunities for disputes to be ironed out which should speed cleanup.

Hopefully, these will result in a final remedy which is agreed upon sooner by the parties. By beginning the actual work on the ground during the investigation phase, cleanup should proceed more quickly.

COMMENT I: (MEIC) No public participation provisions contained within the Partial Consent Decree.

RESPONSE: Comment Accepted. The provision for public participation will be clearly outlined in the Consent Decree as revised.

75-5-617 through 75-5-620 reserved.

75-5-621. Emergencies. (1) Notwithstanding any other provisions of this chapter, if the department finds that a person is committing or is about to commit an act in violation of this chapter or an order or rule issued under it which, if it occurs or continues, will cause substantial pollution the harmful effects of which will not be remedied immediately after the commission or cessation of the act, the department shall order the person to stop, avoid, or moderate the act so that the substantial injury will not occur. The order shall be effective immediately upon receipt by the person to whom it is directed, unless the department provides otherwise.

(2) Notice of the order shall conform to the requirements of 75-5-611(1) so far as practicable. The notice shall indicate that the order is an emergency order.

(3) Upon issuing such an order, the department shall fix a place and time for a hearing before the board, not later than 5 days thereafter unless the person to whom the order is directed shall request a later time. The department may deny a request for a later time if it finds that the person to whom the order is directed is not complying with the order. The hearing shall be conducted in the manner specified in 75-5-611. As soon as practicable after the hearing, the board shall affirm, modify, or set aside the order of the department. The order of the board shall be accompanied by the statement specified in 75-5-611(5). An action for review of the order of the board may be initiated in the manner specified in 75-5-641. The initiation of such an action or taking of an appeal may not stay the effectiveness of the order unless the court finds that the board did not have reasonable cause to issue an order under this section.

History: En. Sec. 18, Ch. 21, L. 1971; amd. Sec. 11, Ch. 140, L. 1977; R.C.M. 1947, 69-4824.

Cross-References

Energy emergency — power of Governor to suspend pollution control standards, 90-4-310.

75-5-622. Additional emergency powers. Notwithstanding any other provisions of this chapter, the department, upon receipt of evidence that a pollution source or combination of sources is endangering the health, welfare, or livelihood of a person, may bring suit in the district court of any county in which the defendant is located or resides or is doing business to enjoin the discharge of pollutants causing or contributing to the alleged pollution.

History: En. 69-4824.1 by Sec. 7, Ch. 506, L. 1973; R.C.M. 1947, 69-4824.1.

75-5-623 through 75-5-630 reserved.

75-5-631. Civil penalties — injunctions not barred. (1) A person who violates this chapter or a rule, permit, effluent standard, or order issued under the provisions of this chapter shall be subject to a civil penalty not to exceed $10,000. Each day of violation constitutes a separate violation.

(2) Action under this section does not bar enforcement of this chapter or of rules or orders issued under it by injunction or other appropriate remedy.

(3) The department shall institute and maintain any enforcement proceedings in the name of the state.

History: En. Sec. 17, Ch. 21, L. 1971; amd. Sec. 6, Ch. 506, L. 1973; amd. Sec. 67, Ch. 349, L. 1974; amd. Sec. 11, Ch. 455, L. 1975; R.C.M. 1947, 69-4823(1), (3).

take into account, in determining penalty, circumstances of noncompliance, ability to pay, and prior history, and requiring deposit of penalties in environmental protection fund; inserted (6) stating circumstances of court's jurisdiction to review administrative order; inserted (7) placing burden of proof on objecting party to show Department's order was arbitrary and capricious or otherwise unlawful; inserted (8) allowing Department, as alternative to issuing administrative notice or order, to bring equitable action in court; and made minor changes in form and phraseology. Amendment effective May 22, 1989.

Cross-References

Injunctions, Title 27, ch. 19.

Nuisances, public and private, Title 27, ch. 30.

75-10-712. Emergency action. If the department determines that immediate response to an imminent threat to public health, safety, or welfare or the environment is necessary to avoid substantial injury or damage to persons, property, or resources, remedial action may be taken pursuant to 75-10-711(1) without the prior written notice required by 75-10-711(3). The department shall give subsequent written notice to the person liable under 75-10-715(1) within 5 days after the action is taken, describing the circumstances which required the action to be taken without prior notice.

History: **En. Sec. 4, Ch. 711, L. 1985; amd. Sec. 7, Ch. 709, L. 1989.**

Compiler's Comments

1989 Amendment: In first sentence, near middle before "welfare", inserted "safety" and near end deleted references to 75-10-711(2) and subsection (b) of 75-10-711(3); in second sentence substituted "person liable under 75-10-715(1)" for "responsible party"; and made minor changes in phraseology. Amendment effective May 22, 1989.

75-10-713. Public notice of administrative order or consent decree. (1) Except as provided in 75-10-712, before final approval by the director of the department of any administrative order on consent issued pursuant to 75-10-711 or before judicial approval of a consent decree issued pursuant to this part, the department shall:

(a) publish a notice and brief description of the proposed order or decree in a daily newspaper of general circulation in the area affected and make copies of the proposal available to the public;

(b) provide at least 30 days (or whatever additional time the department may in its discretion grant upon written request) for submission of written comments regarding the proposed order or decree and, upon written request by 10 or more persons or by a group having 10 or more members (but not including a liable person), conduct a public meeting at or near the facility for the purpose of receiving verbal comment regarding the proposed order or decree; and

(c) consider written or verbal comments properly submitted during the comment period or at the public meeting.

(2) Upon making a final decision regarding the proposed order or decree, the department shall publish notice, as provided under subsection (1), and make copies of the approved order or decree available to the public.

History: **En. Sec. 15, Ch. 709, L. 1989.**

Compiler's Comments

Effective Date: Section 22, Ch. 709, L. 1989, provided that this section is effective May 22, 1989.

75-10-714. Administrative penalties. (1) In lieu of proceeding under 75-10-711(5), the department may assess penalties of not more than $1,000

Proposed Revisions to Partial Consent Decree
Based on Review of Public Comment

Issue	Comment	Notes/Recommentations
1. Jurisdiction State/Federal Injunctive Relief	EPA No. 1	. Include §107 CERCLA . Amend CECRA claim in 75-10-705, MCA.
2. Clarification of appropriate standards for review (ARARS)	EPA No. 2	. Include in Exhibit II and Partial Consent Decree provision requiring identification of Universe of ARARS/ appropriate standards and comparing alternatives against ARARS/ appropriate standards.
3. Permits/ State/Federal Sources	EPA No. 2	. Include permit waivers authored by State law CERCA. . Take up RCRA issue after remedial investigation report received and accepted.
4. Include public participation provision	EPA No. 3 City Comment No.14 MEIC Comment I	. Include public participation provision, include provision for public review of modifications and submittals.
5. Clarify recovery of dispute resolution costs	EPA No. 5 City Comment No.1	. Remove lanugage concerning successful dispute resolution, rely on general definition of response cost and remedial action costs in state and federal law.
6. Clarification of covenant not to sue	EPA No. 6 MEIC Comment F	. Change tense of verbs provide exclusion for hidden or latent defects

7. Objection to binding arbitration	EPA No. 7 MEIC Comment B LIFE Gen.Comments	. Delete binding arbitration, revert to language April 11, 1989 letter which allows State to rely on other appropriate remedies if dispute concerning remedy exists, following negotiations.
8. Identify decision maker responsible for approvals, disppprovals dispute resolution decisions.	EPA No. 8 MEIC Comment F	. Designate Director as final decision maker for purposes of review.
9. Approval timeframes/automatic approvals	City Comment No.10 MEIC Comment F	. Clarify submittal review to provide for 30-day deadline if Dept. has sufficient resources, and submittal is not grossly deficient . Delete automatic approvals.
10. Process for implementation of the remedy	EPA No. 12	. Revise process for remedy implementation to be pursuant to negotation/or available state and federal law.
11. Clarify use of corrective action, plan	City Comment No.7 MEIC Comment G	. Revise corrective action to be emergency action to distinguish it from §29.
12. Scope of Release provision re: negligent and hidden defects	City Comment No.12 MEIC Comment F	. Clarify that release for work performance does not include hidden defect or defects which could not have been reasonably discovered.
13. Clarify disclaimer provision	MEIC Comment D	. Substitute disclaimer language from UST Order with BN, October, 1988.

14. Clarify if cleanup will go beyond site	City Comment No.6	. Use definition of impacted areas and add to Decree in appropriate places.
15. Exclusion from release city and other governmental entities	City Comment No.13	. Include definition of "persons" from CERCLA and CECRA into decree.
16. Standard for judicial review of Dispute Resolution.	City Comment No.11	. Change "or" to "and"

PUBLIC COMMENT INVENTORY

Comment		Comment
1. Letter -Ken Brenna		15. Statement - William H. Brodsky
2. Letter - Peggy Mikesell		16. Testimony (with attachments) Bill Leitch
3. Letter - LIFE (Warren McGee) Thirty-day extension request		17. Comment - Air Quality Bureau
4. Letter - Craig Carlson		18. Comment - Pete Story
5. Letter - Warren McGee Opening comments		19. Letter - City of Livingston (Jovick) to John Larson
6. Letter - Netzy Durfey		20. Larson questionnaire - 19
7. LIFE (letter by Warren McGee) to Solomon; Comments by LIFE Report with Exhibits I & II		21. Letter - City of Livingston (Jovick) to Don Pizzini
8. LIFE (letter by Warren McGee) to Solomon; Transmittal letter for LIFE Comments		22. Letter - Ron Drake
9. Letter - City of Livingston (Orndorff and Jovick) Request for monthly water tap sampling		23. Letter (with attachment) U.S. EPA - John Wardell
10. Letter (with attachment) - City of Livingston (Jovick) Holme, Roberts, & Owen comments		24. Letter - City of Livingston (Jovick) Cover letter with pumping records
11. Letter - City of Livingston (Orndorff and Loftice) Thirty-day extension request and liaison		25. Letter - City of Livingston (Jovick) Requesting additional oversight personnel
12. Letter - D. Suzanne Goodman		26. Letter - Trout Unlimited (Jerry Davis)
13. Comments memo - Jim Durfey		27. Letter - Montana Environmental Information Center - Comments attached
14. Comments memo - Gretchen Rupp		28. LIFE - letter by Warren McGee (to Robert Solomon) - comments on Larson questionnaire
		29. Letter - City of Livingston (Jovick) - residence organic vapor testing request

Comment
30. Letter - Tom Lemke - comments
31. Letter - Park County (Hunt)
32. Letter - Dan Porter
33. Letter - Ralph Hanks

Response to Comment, BNRR Livingston Workplan
Peggy Mikesell August 24, 1989 (Comment #2)

1. A retrospective health assessment is not a part of the process established by the Environmental Protection Agency to clean up sites that MDHES will follow at Livingston. Instead, a Public Health Evaluation will be conducted which will assess potential risks to human health due to exposure to contamination.

   In addition, MDHES has made a written request to the United States Agency for Toxic Substance and Disease Registry (ATSDR) for technical assistance in doing a retrospective health study for Livingston residents. MDHES will keep the public informed on the status of this request.

2. Comment regarding negligence.

3. All waste will be treated or disposed in accordance with applicable state and federal regulation. MDHES preference is to destroy hazardous waste, thus minimizing the need to transport or dispose of this waste.

Response to Comment, BNRR Livingston Workplan
Craig Carlson August 24, 1989 (Comment #4)

The Interim Measures Workplan presents a very detailed program for testing of ground water, soils contaminated areas, and the Yellowstone River. Additional sampling beyond this is likely and MDHES will work with Burlington Northern to obtain additional data as needed.

There are numerous standard and innovative technologies available that will be tested to determine the best cleanup for the site. Some of these are presented in the Interim Measures Workplan. The partial consent decree being negotiated between the State and Burlington Northern will not inhibit any additional cleanup of Livingston's aquifer.

A retrospective health assessment is not a part of the process established by the Environmental Protection Agency to clean up sites that MDHES will follow at Livingston. Instead, a Public Health Evaluation will be conducted which will assess potential risks to human health due to exposure to contamination.

Your well is likely out of the area of ground water affected by the Burlington Northern site. As wells closer to the site get sampled, MDHES will get a better understanding of extent of contamination. If ground water contamination appears to be moving in the direction and vicinity of your well, then it will be sampled as soon as possible.

Response to Comment, BNRR Livingston Workplan
Netzy Durfey (Comment Set #6)

MDHES agrees that, in some cases, cleanup standards for drinking water may need to be more stringent than the existing MCL. This is sometimes the case where multiple contaminants are present in ground water and there is a need to reduce the aggregate health risk associated with drinking this contaminated ground water. This aspect will be addressed in the Public Health Evaluation (baseline risk assessment).

The Interim Measures Workplan has primary goals of collecting data to characterize the site and to begin testing options for treating contamination. Long-term goals for a cleanup strategy are important and will be provided in planned future documents, particularly the Feasibility Study.

MDHES agrees a cleanup plan cannot be fully developed until health risks (carcinogenic and hazard index) are calculated. This will be completed as part of the baseline risk assessment.

There is no slurry wall proposed at this point in the investigation. Any excavated materials will be characterized, containerized if necessary, and disposed of in a manner consistent with applicable regulations.

Fish tissue data from the Yellowstone River was collected by the Montana Department of Fish, Wildlife, and Parks. No levels of chlorinated organic compounds were detected however the detection limits of the analytical tests were not as low as would be desired. It is anticipated that if lower detection limits are available with another analytical test procedure, MDHES in cooperation with the Department of Fish Wildlife and Parks Upon will collect additional fish tissue samples from the Yellowstone River.

Response to Comments, BNRR Livingston Workplan
City of Livingston Request for Monthly Testing of B&D Sheet City Wells and Installation of New Test Wells (Comment Letter #9)

At the request of the City, MDHES will modify the workplan to monitor the B Street and D Street supply wells on a monthly basis for a one year period, for volatile organic compounds. The City's requests for two additional monitoring wells between the BNRR refueling points and the public wells is being incorporated into the workplan. Upon review of the results of first phase of monitoring well installation and sampling, MDHES will determine the need for additional monitoring wells.

Response to Comment, BNRR Livingston Workplan
Jim Durfey (Comment Letter #13)

Fish tissue data from the Yellowstone River was collected by the Montana Department of Fish, Wildlife, and Parks. No levels of chlorinated organic compounds were detected however the detection limits of the analytical tests were not as low as would be desired. It is anticipated that if lower detection limits are available with another analytical test procedure, MDHES in cooperation with the Department of Fish Wildlife and Parks Upon will collect additional fish tissue samples from the Yellowstone River.

Response to Comment made to EPA by Mr. Bill Leitch
Comments prepared by Life to USEPA
USEPA John Wardell deferred the following comments to MDHES
(Comment Packet #16)

4. Energy Labs, selected by Burlington Northern for analysis work at this site, follows EPA methods and guidelines for analytical methods. Energy Labs has been certified as an EPA Contract Lab Program (CLP). Under this program, EPA conducts periodical audits to insure compliance. Samples will be split with MDHES on an opportunistic basis on an approximate 10% frequency. MDHES believes this is an adequate level of oversight at this time.

5. MDHES agrees that soil gases require monitoring. Envirocon will submit a soil/basement gas sampling plan to MDHES for review and approval.

6. Partial Consent decree question.

7. Ground-water samples from all monitoring wells in the investigation program (see Section 5.3 of the workplan) will be analyzed for trace metals. These data will be used to assess the mobility of these metals from the sludge as well as the extent of any contamination in ground water.

9. Offsite monitoring wells will be an important part of this investigation. Once data from the existing monitoring wells plus the first phase of additional monitoring wells (includes both on-site and offsite wells) are reviewed, MDHES will determine locations of additional offsite monitoring wells to characterize the extent of ground-water contamination.

11. The data for Retec interpretation is contained in the report entitled "Summry of Groundwater Investigations and Conceptual Designs of Fuel Recovery System - Volumes I and II." This report is available to the public at MDHES during normal business hours and in the Livingston Library Burlington Northern Document Repository.

15. MDHES agrees that soils adjacent to the tracks need to be tested. As part of the surficial soil sampling program (see workplan Section 4.1.11), such sampling will be accomplished. A workplan for this program will be developed upon site walk through by MDHES staff.

Response to Comment
USEPA Review of the Workplan
Letter from Mr. John Wardell to Mr. Don Pizzini dated September 15, 1989
(Comment Letter #23)

Comment:

1. The work plan should clearly indicate that it is only the first in a series of documents that will be submitted to the State for review and approval. If known, a table summarizing these documents and anticipated schedule for delivery to the State should be included in the work plan. This schedule should be made an enforceable provision of the decree.

Response:

MDHES agrees. Section 3 of the workplan will be modified to include an outline of documents envisioned in this investigation and an approximate schedule

Comment:

2. The discussion of treatability studies should be expanded. It is too vague to understand what is proposed.

Response:

MDHES believes that the level of detail for these treatability studies planned as interim measures is sufficient for the workplan.

Comment:

3. The public health assessment is also only briefly described. The objectives and procedures for performing a baseline risk assessment should be included.

Response:

A separate workplan for the Public Health Evaluation will be prepared. This document will present objectives and procedures for performing the baseline risk assessment.

Comment:

4. The work plan should clearly describe the process for identifying and screening remedial and removal alternatives, as required. The public's opportunity to participate in this critical process should also be clearly described.

Response:

A separate Feasibility Study workplan will be prepared. This document will describe the process for developing and screening remedial alternatives.

Comment:

5. The work plan only briefly discusses the Remedial Investigation/ Feasibility Study phase. The discussion should be expanded to include such items as objective(s) and guidelines for preparation and conduct of the RI/FS. There also does not appear to be any mention of the applicable, relevant, and appropriate requirements (ARARs) for corrective action.

Response:

MDHES agrees. Section 3 of the workplan will be expanded to more fully discuss the RI/FS phases, including identification of ARARs. Procedures for evaluating the criteria of ARAR compliance as well as other evaluation criteria is most appropriately discussed in the Feasibility Study workplan.

Comment:

6. The work plan should contain a community relations plan. This community relations plan should outline the roles of the State, BN, and public and identify timeframes for public review and input.

Response

MDHES will prepare and maintain a community relations plan.

Response to Comment, BNRR Livingston Workplan
Joe Brocks Chapter, Trout Unlimited
Letter from Mr. Jerry Davis (Comment Letter #26)

Our current understanding of impact of contaminated ground water on the Yellowstone River is limited at this early stage of investigation. MDHES agrees that contaminated ground water may have reached the Yellowstone River. The level of discharge and the location of discharge is unknown at this point. MDHES will work with Burlington Northern to track the plume to its point of impact to the river.

The purpose of the river sampling program is to identify possible impact to the river. Data collected under this component of the investigation will also help indicate locations for monitoring wells in order to locate the point of discharge to the river. Based on your comment, MDHES will consider a longer term monitoring program for river water and sediments. Future

monitoring will be based in part on the results of the first phase of sampling.

Removal and/or remediation of the sludge will commence as an interim action as soon as the completion of the partial consent decree. While this work is being done, the investigation of extent of contamination from these sites will be performed. Your comment regarding a possible old dump site around the KPRK studio will be investigated by Burlington Northern and added to the investigation, if warranted.

Fish tissue samples were collected by the Department of Fish, Wildlife and Parks. No chlorinated organic compounds were detected however the detection limits of the analytical tests were not as low as desired. If other analytical procedures are available with lower detection limits, the MDHES in cooperation with the Department of Fish, Wildlife, and Parks will collect additional samples.

Any treated ground water that may eventually be considered for discharge into the Yellowstone River will be in compliance with applicable regulations and will be permitted and monitored under the Montana Pollutant Discharge Elimination System (MPDES).

Response to Comments, BNRR Livingston Workplan
Comments from Tom Lemke (Comment Letter #30)

1. Comment regarding partial consent decree.

2. MDHES will allocate one staff member to oversee the interim measures program. MDHES staff will also be available to assist in the review and planning of site activities, interpretive reports, and additional investigation. In addition, MDHES will retain the services of a private contractor to assist in the various oversight activities. MDHES believes that this will be an adequate level of manpower for oversight.

3. A retrospective health assessment is not a part process established by the Environmental Protection Agency to clean up sites that MDHES will follow at Livingston. Instead, a public health evaluation will be conducted which will assess potential risks to human health due to exposure to contamination.

   In addition, MDHES had made a written request to the United States Agency for Toxic Substance and Disease Registry (ATSDR) for technical assistance in doing a retrospective health study for Livingston residents. MDHES will keep the public informed on the status of this request.

Response to Comments, BNRR Livingston Site Workplan
Comments from Dan Porter (Comment Letter #32)

MDHES is working with Burlington Northern and Envirocon to modify this workplan and future workplans to follow the general guidelines of the EPA Remedial Investigation/Feasibility Study (RI/FS).

The Quality Assurance Program Plan (QAPP) comprises Sections 9, 10, and 11 of the Interim Measures Workplan. The Feasibility Study Plan (FSP) is an important document that will be prepared and submitted to MDHES for review and approval.

MDHES has made a preliminary identification of location-specific, action-specific, and chemical-specific ARARs. These are available for review upon request and will be further refined during the RI\FS procewss to ensure the eventual cleanup complies with all ARARs.

MDHES has made a written request to the United States Agency for Toxic Substance and Disease Registry (ATSDR) for technical assistance in doing a retrospective health study. MDHES will keep the public informed on the status of this request.

A Data Quality Objective (DQO) document is presented in Section 10.5 of the workplan. The document will be revised based on further MDHES review as well as public comment. ATSDR does not participate in the development of the DQO document.

The Public Health Evaluation (baseline risk assessment) will be conducted by a consultant selected by MDHES Opportunity for the public to participate in the study will be in the form of review and comment of the workplan, public meetings, and interpretive reports.

Neither the NCP or CERCLA requires that a qualified consultant must review the workplan to identify areas of the plan has or has not complied with CERCLA. MDHES, however, has completed such a review and has revised earlier versions of the workplan substantially to better reflect CERCLA guidance. Further revisions to this workplan will be made based on EPA comment, public comment and further MDHES review.

MDHES RESPONSE TO COMMENTS BY LIFE ON THE
INTERIM MEASURES WORKPLAN

General Comments

Comment:

1. Long-term goals of the remediation process outlined in the Interim Workplan are not clearly stated. LIFE recommends that these goals be developed as soon as possible, be approved by MDHES and the City of Livingston, and incorporated into the Interim Workplan. Since one of the primary goals of the plan with respect to residents of Livingston must be to ensure that contaminants do not migrate undetected to areas where their health and welfare might be adversely affected, LIFE recommends that a health risk assessment be developed and completed by MDHES prior to evaluation and determination of final remediation measures.

Response:

The purpose of the interim measures workplan is to define the nature and extent of contamination at this site, as well as to complete initial treatability studies for discrete known contamination. The next step, the Feasibility Study (FS) will evaluate various options for the remediation of the contaminants. More site specific goals of the Feasibility Study will be set forth in the FS workplan. A public health assessment will be completed prior to completion of the Feasibility Study, according to guidance set forth by EPA. Once the FS is completed, MDHES will select remedies for the site. Once the remedies have been selected, and after public comment is addressed, the long-term remediation process will be set forth.

Comment:

2. LIFE believes that a retrospective health analysis should be an integral part of the remediation effort because it provides a basis for determination of health-based (not technology-based) clean-up levels for contaminants. Such a plan is especially important in Montana, for the state has promulgated very few standards for the contaminants that have been released at this site.

Response:

A retrospective health analysis is not part of the Remedial Investigation/Feasibility Study (RI/FS) process, the procedure established by EPA to clean up sites. However, a public health evaluation will be completed to assess the risk to human health if no remedies occur at the site. The public health evaluation in conjunction with applicable standards, will be used to set clean-up levels for the site.

MDHES has requested technical assistance from the Agency for Toxic Substance and Disease Registry (ATSDR) to conduct a retrospective health

evaluation. ATSDR has recently responded to MDHES's request and has offered assistance with this task. Further meetings will be necessary to implement this evaluation.

Comment:

3. Since the three-dimensional extent of the solvent plume in the groundwater is not yet known, and the alluvium underlying the site is known to be extremely permeable, it is not unreasonable to assume that the solvent plume may have migrated further than indicated in previous studies. In addition, no careful search for dense non-aqueous phase liquids (DNAPL) have been performed, and a DNAPL plume may move in a different direction than the diesel or solvent plumes. Therefore, LIFE recommends that a series of interceptor wells be immediately installed between the site and all existing city wells down-gradient or lateral to the plumes, and that water from these wells be monitored on a monthly basis for no less than one year, and for a longer period if work on the site indicates that continuation of such monitoring would be prudent.

Response:

MDHES agrees that the solvent plume may have migrated farther than indicated in previous studies. Monitoring wells proposed in the interim workplan will better define the extent of the plume with additional monitoring wells likely based on the results of the first phase of wells. Investigations will also include detection of dense non-aqueous phase liquids (DNAPLs) concentrating at first at the possible sources of these contaminants. If DNAPLs are detected, then the remedial investigation will be expanded to further define the extent of this contamination.

MDHES agrees with the recommendation for monitoring (interceptor) wells between the site and existing city wells.

Comment:

4. LIFE recommends that a provision be added to the Workplan and/or Partial Consent Decree that ensures that Burlington Northern will be in compliance with both state and federal Applicable and/or Relevant Appropriate Requirements (ARARs) prior to MDHES approval of each interim and final remedial action. It should be noted that if the State of Montana fails to consistently consider and apply state ARARs at the Livingston site, those ARARs might not have to be complied with at other sites throughout Montana.

Response:

All interim and final remedial actions will comply with ARARs to the maximum extent practicable. At this early stage in the remedy selection process, MDHES has identified a master list of ARARs. Demonstration of remedy's compliance with ARAR will be done in the Feasibility Study, as set forth in EPA guidance.

Comment:

5. The dynamics of neither the diesel nor the solvent plume are well understood. That is, no one knows if the plumes are growing, shrinking, fluctuating, rising, falling, or stable. The workplan is understandably focused on removing as much of the contaminants as quickly as possible, a process which could nevertheless take years during which Livingston residents might be needlessly exposed to further risk. LIFE recommends that no fewer than seven monitoring wells be placed in and around the plumes that are specifically designed to obtain data that will shed light on this question. Once the behavior of the plumes is better understood, the sequence in which remediation methods are employed can be modified so as to minimize risk to Livingston residents.

Response:

Approximately eleven well locations have been selected for the first phase of well installations in the interim measures workplan (see Figure 4-12 of revised workplan). Upon analysis of the results of these wells, additional monitoring will likely be needed to further define the extent of contamination.

Comment:

6. LIFE concurs with the DHES position that the Interim Workplan be a workplan for containment of liquids and solids in the sludge pits at the site, work to be performed shortly after the Partial Consent Decree is signed. LIFE encourages Envirocon to begin this task at the earliest possible date.

Response:

MDHES has determined that containment and treatability studies of sludge pit liquids and solids will be done at the earliest possible date with procedures to be followed as described in the workplan.

Comment:

7. LIFE agrees with DHES that many contamination pathways have not been fully characterized, including non-source area surficial soils, extent and dynamics of ground water contamination, and potential for impacts to the Yellowstone River by means of surface water and groundwater pathways.

Response:

These pathways and others will be characterized as part of the remedial investigation.

Comment:

8. LIFE agrees with the position of DHES that a set of evaluation criteria be developed to be used to screen remediation methods, and used to select interim and final remedies. A comprehensive report documenting the evaluation of alternatives using these criteria must be prepared. The following criteria are appropriate:

- overall protection of human health
- compliance with ARARs
- long-term effectiveness and permanence
- reduction of toxicity, mobility, and volume
- short-term effectiveness
- feasibility
- cost
- community acceptance
- state acceptance

Response:

The criteria referenced in this comment are from EPA guidance on the conduct of a Feasibility Study. Remedial alternatives will be evaluated by using these criteria during the Feasibility Study component of the site clean-up program.

Comment:

9. LIFE recommends that a Data Quality Objectives document be prepared that will ensure that detection limits for site contaminants be low enough to determine whether or not MCLs are being met, and that permits prediction of health effects on Livingston residents and on the environment. This document should be approved by MDHES and by the City of Livingston or its designee.

Response:

The Interim Measures Workplan has been revised to include a Data Quality Objectives section (Section 10.5). The data quality objectives includes detection limits for specific analytical methods that are lower than maximum contaminant levels (MCLs). These detection limits are presented in Tables 10.1 through 10.4. Further revision of the Data Quality Objectives section will be done based on further internal review and public comment.

Comment:

10. MDHES and Burlington Northern have agreed that a Public Health Evaluation Steering Committee will be formed to review and approve matters related to the public health evaluation study. LIFE recommends that this committee include two members from the City of Livingston or its designees.

Response:

The public health evaluation will be conducted by a consultant selected by the MDHES. Both the workplan for the evaluation and the draft report that will present findings and conclusions will be provided to the public for review and comment. All comments will be addressed prior to finalization of either of these documents.

Comment:

11. LIFE concurs that the extent of plume migration to the north and east of the site must be determined, and that additional wells are needed between areas where contaminants have been detected and the Yellowstone River for this purpose, especially near the L and Q Street and Rainbow Motel wells.

Response:

Planned monitoring wells 89-1 and 89-6 should provide a better understanding of plume extent north of the site. Sampling of domestic wells downgradient of the site has provided additional information on the extent of contamination. MDHES will consider additional wells in this area to track the plume, based on the data from these two wells. MDHES agrees that additional monitoring wells are needed east of the site and will work with Burlington Northern to have wells installed where plume information is most needed.

Comment:

12. The groundwater quality monitoring plan should include analyses for metals and pesticides on an annual basis, but during the first year, analyses should be performed at six-month intervals. Near the cinder pile, analyses for metals should be on a quarterly basis to determine whether or not the pile is a source of trace metals in the groundwater.

Response:

The revised frequency of monitoring is described in Section 5.3 of the revised workplan. Metals, pesticides and PCBs will be analyzed for once, with one additional round for confirmation if MDHES deems appropriate upon review of the first round of data. Pesticides and PCBs are not expected to be found in the ground water but will be done to ensure a complete screening of possible contaminants. Metals are not expected to be found in concentrations greater than background, with the possible exception of the cinder pile which may be a source of trace metals. As more is learned about contamination near each source area, monitoring will be tailored to site-specific conditions.

SECTION 1 - INTRODUCTION

Page

Comment:

1-2 LIFE concurs that liquids and solids in the sludge ponds associated with the waste-water treatment plant, separator pond, overflow pond, and cinder pile lagoon should be removed as quickly as possible in accordance with procedures described on page 21 of the MDHES/BN Response Document of June 28, 1989. The materials can and should be removed immediately, rather than awaiting completion of investigative or pilot-scale studies.

Response:

MDHES has determined this program to be an appropriate interim action to prevent further contamination of groundwater. This interim action will be initiated upon finalization of the partial consent decree.

Comment:

1-2 Full-scale removal of floating diesel should not be begun until the extent and amount of the hydrocarbon plume has been determined.

Response:

Full-scale removal of floating diesel has not been started to date. The interim measures workplan sets forth a two phase program for this task. Phase I will comprise a pilot scale testing program to obtain design parameters for the full scale system. Concurrently the hydrocarbon plume will be more fully defined. The Phase II program will utilize Phase I information for design and construction of the full-scale recovery system.

SECTION 2 - WORKPLAN FORMAT

Page

Comment:

2-3 LIFE agrees that pilot-scale extraction of floating diesel should be implemented immediately. This activity should be carried out in accordance with, and undertaking the precautions described on pages 17-19 of the MDHES/BN Response Document.

Response:

The pilot scale testing program will be initiated upon finalization of the partial consent decree.

Comment:

2-4 To repeat, LIFE recommends that removal of liquids from the sumps and ponds be initiated immediately.

Response:

Removal of liquids from sumps and ponds will be initiated upon finalization of the partial consent decree.

Comment:

2-4 LIFE does not agree that identification of plumes is relatively complete, and recommends in another section steps that should be taken to define the extent of the plumes.

Response:

MDHES agrees that plume identification is not complete. An initial phase of new monitoring wells will be constructed to further define plume extent with additional monitoring well likely installed based on the findings of the first phase of ground water monitoring.

Comment:

2-6 The Workplan frankly acknowledges that the MDHES manpower allocation will be "constrained", and that availability of personnel to provide input will be "limited". LIFE views this acknowledgement as a considerable understatement, and recommends that MDHES hire at the earliest possible moment two additional staff to assist in oversight responsibilities at the Livingston site. Costs attendant to these hirings will be borne by Burlington Northern.

Response:

MDHES will allocate one staff member to oversee the interim measures field program. MDHES staff will also be available to assist in review and planning of site activities, interpretive reports and additional investigations. In addition, MDHES will retain the services of a private contractor to assist in the various oversight activities. MDHES believes that this will be an adequate level of manpower for oversight.

SECTION 3 - REGULATORY FRAMEWORK

Comment:

1. There is mention of a MDHES on-site coordinator to supervise the implementation of this Workplan. It is IMPERATIVE that this position receive immediate funding as well as being included in long term budget planning to span the length of the clean-up and natural resource damage assessment. As of now, MDHES has no money for this position and plans to use the already overtaxed efforts of Vic Anderson and John Arrigo to oversee the

project. Having two full time site coordinators stationed in Livingston directly supervising Envirocon personnel is essential to the success of the cleanup. LIFE would like to be included in the selection process of these on-site coordinators.

Response:

MDHES will allocate one staff member to oversee the interim measures field program. MDHES staff will also be available to assist in review and planning of site activities, interpretive reports and additional investigations. In addition, MDHES will retain the services of a private contractor to assist in the various oversight activities. MDHES believes that this will be an adequate level of manpower for oversight.

Comment:

2. There is reference to a Public Health (Risk) Assessment conducted by an MDHES contractor to examine the risk to public health from the contaminants. This needs to be initiated AS SOON AS POSSIBLE, since it will serve as a basis for the cleanup. It is ESSENTIAL that this study be conducted according to the EPA guidelines set forth in the Superfund Public Health Evaluation Manual (EPA, 1986). This manual calls for a review of ALL POTENTIAL PATHWAYS of contamination: water ingested, contact through the skin, eating of contaminated fish, contact through soils and through gases in the air. A true public health evaluation cannot be done without having data on these transmission routes. There are no plans in the Workplan for testing of soil gases, tap water testing and fish sampling in the Yellowstone. The regional surficial soil contaminant data and air-quality information in the Workplan are inadequate.

   It is vital that this public health assessment look at all segments of the population not just the average health adult. Effects of these contaminants on pregnant and lactating women, infants, and small children, the elderly and debilitated has not been investigated in spite of repeated requests.

   MDHES had plans to appoint a Public Health Evaluation Steering Committee which will be responsible for the selection of consultants to undertake the work, identification of the scope of work, establishing budgets and reviewing the final products. To our knowledge, this committee has yet to be established. Life requests that two of its members or designees from Livingston be on this committee to assure a comprehensive public health risk assessment that adheres to EPA guidelines.

Response:

The Public Health Evaluation cannot be initiated until sufficient data has been collected to evaluate all plausible pathways of exposure. These data will be collected in programs described in the interim measures workplan, and with additional, as needed, and determined by MDHES.

The Public Health Evaluation will be conducted according to the EPA guidelines set forth in the Superfund Public Health Evaluation Manual.

Data will be collected or has been collected to evaluate specific pathways identified by LIFE: Tap water, oral and dermal exposures to surficial soils and inhalation of particulates. MDHES agrees that exposure to soil gas needs to be characterized. MDHES has conducted limited sampling for organic vapors in several homes in Livingston. Envirocon will submit a draft soil/basement gas sampling for MDHES review and approval. Consumption of Yellowstone River Fish has not been contemplated to date. MDHES will review recent data collected by the Montana Division of Wildlife and make the determination of whether additional sampling is needed and warranted and whether human consumption of fish comprises a pathway of contaminant exposure.

In general, public health evaluations use conservative estimates of contaminant toxicity and exposure rates to account for sensitive populations such as small children and pregnant women. Different contaminants affect different sensitive populants. In the next few months MDHES will be scoping the Public Health Evaluation and will consider potential sensitive populations. The workplan for the public health assessment will be submitted to the public for review and comment.

The Public Health Evaluation will be conducted by a consultant selected by MDHES. Opportunity for the public to participate in the study will be in the form of review and comment of the workplan, public meetings, and review of interpretive reports.

Comment:

3. There are also concerns among the residents of Livingston about the high rates of miscarriage, cancer, and unusual diseases in this population. LIFE therefore requests that a retrospective health analysis be conducted to address these concerns.

Response:

A retrospective health analysis is not part of the RI/FS process, the process established by EPA to clean up sites. A public health evaluation will be conducted to assess the risk to human health if no remedies occur at the site.

MDHES has made a written request to the Agency for Toxic Substances and Disease Registry (ATSDR) for technical assistance in doing a retrospective health study for Livingston residents. ATSDR has agreed to assist MDHES in designing a study that will attempt to answer these concerns. MDHES intends to pursue implementation of a health effects study.

Comment:

1. There needs to be surficial soil sampling program to assess the potential contamination in areas between known contaminated sites. There should be no composite sampling allowed.

   Windblown depositions and incidental releases of contaminated soils needs to be surveyed and addressed.

Response:

A surficial soil sampling program will be conducted as part of the interim measures workplan activities. This program is described in Section 4.1.11. Specific sampling locations will be selected by MDHES during site investigation visits scheduled for the beginning of the program.

Comment:

2. 4.2 There are additional sites that need to be considered

   - the C and P Packing Plant and surrounding ground area;
   - the RR tracks where oil was dumped for many years;
   - the existing sewer plant, the pipes leading from RR to this area.

Response:

These sites will be evaluated under the interim measures workplan. The sites will be visited by MDHES during various site visits and any additional characterization work will be added to the investigation as appropriate. Additional field work associated with the sites will be documented in a later workplan.

Comment:

3. 4.3 A Site tour with MDHES isn't enough. There needs to be former BN workers who actually dumped solvents and other hazardous materials to take Envirocon and MDHES personnel around the RR yard and show where the dumping grounds were.

Response:

MDHES and Envirocon has talked with some former BN workers regarding site activities that may be indicative of spills or disposal of hazardous materials. This information, along with information collected during

upcoming site tours will form the basis of additional source characterization as needed and appropriate. If the LIFE committee knows of former BN workers with knowledge of disposal activities, please direct them to the MDHES.

Comment:

4. 4.3 We have to compare on-site soils to clean off-site soils to acquire a background analysis. This should not be done in a composite manner.

Response:

The surficial soil sampling program will include analysis of offsite soils to evaluate background concentrations, particularly for trace metals such as cadmium, lead, and arsenic. Where there is a need to determine spatial distribution of contaminants, compositing will not be performed.

Comment:

5. 4.5 The number of samples is way below for a quality and responsible analysis of different sites. Who determines whether the lower or higher number is taken and what if more samples are needed?

Response:

MDHES believes that the number of samples are sufficient to get an understanding of nature and extent of contamination. MDHES will prescribe additional sampling for treatment or removal tasks or if the extent of contamination cannot be sufficiently determined in this phase of sampling. Envirocon proposed the number and location of samples with review and revisions made by MDHES.

Comment:

6. 4.6 There should definitely be no composite sampling done at the cinder pile.

Response:

Where there is a need to know the vertical extent and areal extent of contamination, as with the cinder pile, compositing of samples will not be done.

Comment:

7. 4.1.2 One sample is not sufficient. There needs to be an outlined system of testing for nitrates in writing and adhering to the right laws that govern this procedure.

Response:

Four locations have been tentatively identified for sampling. The sampling program for nitrates was based on the MDHES suspicion that its presence in ground water may be due to historical use of livestock manure at the site. While presence of nitrates in high concentrations is unlikely, it is prudent to test for its presence. Sampling procedures are straight-forward and are similar to other soil samples outlined in Section 9.5. Chemical analysis procedure is EPA method 353.2.

Comment:

8. 4.8 With regards to the waste water discharge, there needs to be additional trenches for a responsible analysis, there needs to be drilling and sampling down to the native soils, to determine pristine conditions, and definitely there should not be any composite sampling allowed.

Response:

Three trenches are planned for the waste-water discharge area (see Figure 4-5) and seven trenches are planned for the waste water drain line (see Figure 4-6). MDHES believes that the number of excavations planned should be sufficient to determine if there have been leaks in the system. If leaks are found then additional sampling may be needed.

Comment:

9. 4.9 There are presumptions about the base of the trench and there is no evidence to support this. For a good clean-up, there has to be substantiated reports to make presumptions and assumptions because that influences the future steps taken. We need to see more testing done and the results to determine if indeed some residual organic material remains buried there. It may amount to much more complicated things.

Response:

MDHES believes that the planned excavations should be sufficient to determine the base of the trench and the level of contamination. If the trench/pipeline configuration turns out to be more complicated than expected, then additional work will be done.

Comment:

10. 4.9 There are not enough trenches planned at varying verticals to make good analysis of the surrounding areas.

Response:

The three trenches planned for the waste water discharge area (see Figure 4-5) should provide a good understanding of the extent and nature of contamination in this area.

Comment:

11. 4.10 There is definitely not enough detail about how the excavations are going to take place, where the residue is going to be contained, and are these wells sufficient to do the job? We are uncomfortable with the first and second paragraph on this page.

Response:

As shown in Figure 4-6, six trenches are planned for drain line area. MDHES believes that these excavations should be sufficient to detect leaks in the system. Excavations will be completed to below the drain and tile and discrete samples collected adjacent to the drain tiles and at 5 feet intervals with the trench. All residues will be contained until their level of contamination is determined. Disposal of contaminated material will be done under the supervision of MDHES, in accordance with applicable regulations.

Comment:

12. Figure 4.7. How was it determined for limit lines of reclamation of plant spill area? Why are there not trenches at the spill area? Composite sampling should not be the primary sampling method.

Response:

The approximate extent of the reclamation spill area was determined based on air photo interpretation, historical records, and preliminary site inspection. Its extent is approximate and will be further defined as part of the underground fuel and storage system component of this investigation (Section 4.1.9). A separate workplan for this investigation will be submitted to MDHES for approval.

Comment:

13. Figure 4-8. Why only two trenches to determine if and where the pollution is?

Response:

Two locations have been tentatively located based on limited information about this site. As noted on page 4-12, the number of sampling points and locations may be modified based on information gathered during the investigation.

Comment:

14. 4.13 Retec is compositing the data, when will the community of Livingston see those results?

Response:

The Retec report has been recently completed and is available to the public for review at MDHES and the Livingston Library during normal business hours.

Comment:

15. 4.12 Why only 5 feet intervals?

Response:

Five foot sampling intervals were selected to determine representative depth of contamination. This type of site screening is commonly done in the initial investigation of potentially contaminated areas. If the initial screening program indicates contamination, then follow-on sampling will be done to further define the extent of contamination and to collect data to evaluate clean-up options.

Comment:

16. 4.14 Where there were leaks in the containers, was all the contaminated soil cleaned up and tested and disposed of properly according to CERCLA and RCRA laws?

Response:

Table 4-2 summarizes information known to date regarding the storage tank removal program. As indicated, some leaks were evident. Contaminated soil, as determined by visual observation, was cleaned up under the supervision of MDHES. Additional contamination may be present in these areas and a workplan for investigation will be prepared upon review of the final Retec tank removal report (See Workplan Section 4.1.9).

Comment:

17. 4.15 Again, composite sampling is supposed to be used. It should not be allowed at all at this area. There is not enough detail about drilling and test wells to determine if this is a good plan.

Response:

As indicated on page 4-15, composite samples will be used to screen the central areas while discrete samples will be used to define boundaries. MDHES will provide careful oversight to insure that discrete samples will be collected to define boundaries of contamination. Regarding detail of this investigation, Figure 4-11 shows locations of test excavation on boreholes. Samples will be collected at 5 foot intervals and characterized for contaminants outlined in Section 4.2.

Comment:

18. 4.16 There are no addendums to this section. One cannot determine if this is a good plan of action unless more information is given.

Response:

The purpose of the program is to assess potential windblown and surface water contaminant migration. The specific program has not been set forth to date but will be developed by MDHES and Burlington Northern staff based on the current understanding of the site and one or more site inspections.

Comment:

19. 4.19 These need to be tested for trace metals and by some lab other than the ones being used by Envirocon and the State.

Response:

Each of these wells will be tested for trace metals. Energy labs will be used for analysis with a percentage of samples split with MDHES. These split samples will be analyzed by MDHES lab or a contract lab as a quality assurance measure. MDHES believes that this is sufficient and appropriate level of quality assurance checking.

Comment:

20. BN should submit proposed construction details for each well, including screen and sand pack depths, for state review and approval.

Response:

All well construction will follow guidelines set forth in Section 9.4 of this workplan. General diagrams for well construction are presented in Figures 9-2 and 9-3. These area sufficient for planning purposes. Specific well construction information will be recorded for each well and will be presented in interpretive reports (See Workplan Section 4.6).

Comment:

21. When BN paid someone to clean up the atrazine in the surrounding community a few years ago, what happened to all the soil that was contaminated with atrazine?

Response:

In an attempt to remediate this contamination, Burlington Northern applied charcoal to the affected areas and filled it in. This past summer (1989) the Department of Agriculture collected a soil sample in the application area and found atrazine still present. Therefore, this area will be investigated for atrazine contamination. Additionally, the list of analytical parameters for soil and water will be revised to include atrazine for the first set of samples. Depending on these results, further atrazine testing will be assessed.

SECTION 5 - GROUNDWATER MONITORING PROGRAM

Comment:

1. In the private well monitoring program and the BN monitoring well network there are no plans to include quarterly sampling of semivolatiles, PCBs, pesticides or metals since one set of prior tests were negative for these contaminants. There are NO PLANS to test the public drinking supply for these contaminants. This is unacceptable. Quarterly testing of ALL POSSIBLE CONTAMINANTS must be done initially in all wells until a sufficient data base is established to draw conclusions.

Response:

Semivolatiles, PCBs, pesticides, and metals are unlikely contaminants in the site area. For completeness, MDHES will require that ground water from selected monitoring wells be analyzed for these types of contaminants. If the monitoring wells show detections of these contaminants, then MDHES will develop a domestic well sampling program to monitor such contaminants.

Comment:

2. There are plans to test the public water supply wells quarterly. Since some of these wells have been tested inadequately in the past and traces of contaminants have been found in one of the wells recently, LIFE requests MONTHLY testing of the public wells at this time. Also, there is a need to drill "early warning intercept wells" between the site and the D and B Street wells to detect the flow of contaminants toward these public wells from the BN refueling areas.

Response:

The monitoring program will be modified to include monthly sampling of the public water supply wells. MDHES agrees with the recommendation of the installation of monitoring wells between the city water supply wells and the railyard.

Comment:

3. Envirocon has been and plans to use Energy Labs in Billings exclusively to test their water samples. LIFE demands a minimum of 10% of field replicates be sent to an independent "referee" lab for quality control. Because the MCLs and detection limits on the volatile organics are very close, LIFE demands 20% or higher field replicates be done on those tests involving the public drinking water.

Response:

As part of oversight of the investigation, MDHES or its contractor will take opportunistic sample splits and send them to an independent lab for analysis. We are targeting a 10% QA/QC split program.

In addition, there are a series of internal QC procedures to assess both laboratory precision and accuracy, and field error. These procedures are outlined in Sections 10.12 through 10.15. This includes both field replicates and blanks. An appropriate percentage of field replicates (10%) will be submitted for analysis.

Comment:

4. Envirocon plans to drill 10 to 12 new wells for its monitoring network. Only three of these wells will be off-site. This is inadequate. More attention needs to be given to the off-site areas: near the refueling and Depot areas, northwest of the BN site and near the Yellowstone River. The original GeoTrans, Inc. report (Exhibit 1) recommends a minimum of 7 additional wells.

Response:

The majority of the seven additional wells recommended in the GeoTrans reports were included in the first set monitoring proposed in the revised workplan for public comment. MDHES anticipates that additional monitoring wells will be needed. Upon review of monitoring data from the first phase of wells, MDHES will determine the need and location of additional wells. Possible offsite locations will be given careful consideration.

Comment:

5. There is a discrepancy in the charts listing what exact volatile organic contaminants will be tested for. On page 9.23 there are 31 listed and on page 10.11 there are 60 listed as being included in the testing method

534.2. Also, nowhere is it listed exactly what semi-volatiles will be tested for.

Response:

The list of volatile organics presented on page 10-11 is the complete set of compounds analyzed using EPA method 524.2.

The semivolatiles are listed in Table 10.2 on page 10-11. They are presented by two types - acid extractables and base neutral extractables.

Comment:

6. LIFE recommends that the frequency of testing wells #1, #2, #3, and #89-2 be changed to monthly and wells #L-88-9 and #LS-7 be changed to quarterly. Also, since wells #LPW-1, #LB-4, and #LS-12 lie under the diesel plume it is required that they be "dedicated sampler" wells which this report indicates they are not at this time.

Response:

The monitoring well sampling frequency has been revised from the earlier plans. The program is designed for annual, quarterly and monthly monitoring schemes, including wells listed in your comment. MDHES believes that this is an appropriate monitoring frequency at this time.

Monitoring wells LPW-1, LB-4, and LS-12 are not listed for dedicated sampling because it was believed that the wells could not be equipped for such equipment. If they can be equipped for dedicated sampling, then they will be.

Comment:

7. Nitrate testing of wells near the livestock unloading area must be done on a systematic schedule and not just a one time only basis.

Response:

MDHES has included the nitrate testing program to test the premise that elevated nitrate concentrations in ground water may be present due to contamination from livestock manure. If elevated nitrates concentrations are detected, then a long-term monitoring program will be developed.

Comment:

8. There are no plans for testing of the public water at the household faucet. This is the ONLY way to test the entire system (water pipes, reservoirs, etc.) for contaminants. We request a systematic plan for residential tap water testing for all contaminants. If negative, this will allay the fears of many residents. If positive, this will indicate additional testing (of the pipes, wells, etc.) is needed.

Response:

Envirocon has conducted some limited testing of samples collected from household taps, at dead-end mains and in the storage tank to evaluate the extent of contamination in the water distribution system. Samples have been analyzed for volatile organic compounds which are believed to be the prevalent contaminants. The degree to which these samples represent the "entire" system is currently being evaluated. If MDHES determines that additional samples are necessary, it will require BN to submit a revised water distribution system sampling plan.

Comment:

9. GEOTRANS, INC. is a consulting firm that the MDHES hired to review the Interim Remedial Measures Workplan prior to its issuance (Exhibit 1 and 2). They listed many specific deficiencies in the Workplan, however, MANY of them were not corrected. We are including a section from the GEOTRANS, INC. report (Exhibit 2) on the topic of groundwater monitoring.

   g. Long-term ground-water monitoring program (existing task) - The proposed monitoring program was reviewed to determine if it would likely meet four goals pertinent to long-term monitoring.

      - To ensure that contaminants do not migrate undetected to appears where the health and welfare of people living near the site are affected;

      - To monitor concentrations within the solvent plume to determine whether the plume is continuing to grow, whether concentrations will decline through natural degradation, and to ensure that petroleum-product recovery operations do not cause the solvents to migrate into area previously uncontaminated by solvents;

      - To monitor the free product plume, and its associated dissolved plume, so that the progress of the interim remediation can be monitored; and

      - To determine whether other, unidentified, contaminates are present in the groundwater.

   Because of time constraints, a review of well screen depths was not performed to determine whether they are adequate for the intended purposes. For new wells, Burlington-Northern should submit proposed construction details for each well, including screen and sand pack depths, for State review and approval.

   In general, the proposed monitoring plan appears to be essen-

tially adequate, but with a few deficiencies. The revisions should include:

1. Perform analyses for metals and pesticides on an annual basis. During the first year, the analyses should be performed at 6-month intervals in order to determine whether annual sampling is sufficient.

2. Perform analyses for metals quarterly near the cinder pile to determine whether the pile is a source of trace metals in the ground water (Wells L-88-10 and L-87-3).

3. Use EPA method 600 for As, Se, Th, and Pb. Use Method 200.7 (ICAP) for other metals.

4. Change the sampling frequency of the following wells from that proposed in Table 5.1 of the Workplan:
   89-2 to Monthly
   L-88-9 to Quarterly
   LS-7 to Quarterly

5. Obtain monthly average stage data for the Yellowstone River to supplement the water-level measurements. All stage measurements (wells and river) should be based on the same datum.

6. Sample wells 89-10-B and LS-8 for nitrate concentrations.

Depending on the results of the monitoring and further review of the existing wells, other revisions may also be requested.

Background concentrations of metals are apparently unknown, and a single sampling episode will not provide sufficient information for their determination. For completeness, metals concentrations should be reported regardless of whether they are above or below the "background levels" (p. 5-11). Concentrations of organics may be screened, for the basis of a summary table, on whether concentrations are above the detection limit, but the results of all analyses should be provided to the State in both paper and digital formats.

Once a detailed plan for hydrocarbon recovery is developed, the monitoring program should be revised to determine if it is adequate for detecting movement of solvents toward the recovery wells.

New wells proposed for the long-term monitoring program (Chapter 4 of the Interim Remedial Measures Workplan) were reviewed, and comments are provided for some of these wells.

Well 89-1 -- This well is proposed in a location where ground water is probably moving upwards toward the

Yellowstone River. Therefore completing this well just above the bedrock surface may not encounter water moving from the site, but from the underlying bedrock. Its completion interval should be reconsidered.

Well 89-2 -- This well should be screened to monitor the upper part of the saturated zone.

Well 89-5 -- During the packer testing of this hole, head measurements within the packed-off intervals should be obtained in order to better characterize the vertical head distribution. Sufficient time for collecting these data should be allowed.

Wells 89-8-A, B, and C -- Because this set of wells will provide information on both the vertical distribution of contaminants, and on vertical head distribution, it should be drilled before any other wells. Information gained from these wells would then provide guidance on screen intervals for subsequent wells. Because PERC has a specific gravity of about 1.6, it will have tended to sink to the bedrock surface, especially if present as a separate phase. The wells should be completed with a short trap beneath the screen in which to collect and detect NAPL. Casing and screen materials should be resistant to the solvents known to be present at the site.

Well 89-9 -- See the comments for wells 89-8-A,B,C relative to NAPL and casing and screen materials. This well should be drilled immediately after the 89-8 series.

Wells 89-10-A, B, and C -- This nest should be drilled immediately after 89-9 is drilled, so that information on the vertical head and concentration differences can be used to guide placement of subsequent well screens.

Response:

The majority of GeoTrans recommendations have been incorporated into the revised Interim Measures Workplan presented for public comment. The remaining recommendations (particularly monitoring frequency) have been incorporated in the Workplan with some variation. For example, GeoTrans recommended two 6-month sampling intervals for pesticides, PCBs, and metals with the purpose of verifying an initial set of data. MDHES will accomplish this by reviewing the first set of analytical data and then determining if a second set of data are needed.

SECTION 6 - HYDROCARBON RECOVERY PLAN

Page

General Comments

Comment:

Section 6 makes no mention of a screening process or performance criteria on which to base selection of a final remediation alternative for hydrocarbon removal. Such a process or criteria should be included in the plan and approved by MDHES prior to finalization of the Workplan. Standards included in this process or among the criteria should be health-based, not technology-based.

Response:

MDHES agrees that a formal screening process is needed for the final remedial alternative selection for hydrocarbon removal. The process will be set forth in the Feasibility Study where final remedial alternatives for all contamination at the site will be assessed.

The workplanned in this interim measures workplan is an interim action designed to remove petroleum from groundwater to prevent further contamination of the groundwater. It has appropriately been given a faster track schedule.

Standards and criteria used in evaluating final remedial actions will be health based, unless its technically infeasible to achieve such standards.

Comment:

Section 6 does not appear to contain provisions for ensuring that product recovery activities do not affect the solvent plume so as to bring about migration into previously uncontaminated areas. This deficiency should be corrected before the Workplan is finalized.

Response:

The Phase I pilot test for this interim action (see Section 6.2) is designed to test the feasibility of this hydrocarbon recovery program and to design a full scale system. As part of the evaluation of the Phase I test, the impacts of the system on the solvent plume will be assessed. Full scale recovery (Phase II) will be adjusted accordingly.

Comment:

Section 6 (and other sections) appear to contain a bias toward in-situ bioremediation. The limitations of these remediation methods are not described. One major limitation is that even if the method works, the diesel would continue to release contaminants into the aquifer until the remediation was complete, a process that could take years. Accordingly, the Workplan should include provisions for interim protection of city and private wells in the event that

bioremediation is the final alternative decided upon. Examples might include placement of slurry dams between the plume and the nearest wells, or placement of a battery of monitoring wells with a schedule of frequent sampling between the plume and the nearest wells.

Response:

The apparent "bias" towards bioremediation was also noted by MDHES in an earlier version of the workplan and it was therefore revised to include the evaluation of other technologies such as vacuum extraction (see page 6-3). Bioremediation is a viable technology that merits testing as an interim action.

MDHES is committed to removal of hydrocarbons from the aquifer as soon as feasible under this interim action, so as not to have the diesel continue to release contaminants into groundwater. While this program is being tested and designed, city, and private wells will be monitored to detect any contamination.

Comment:

The time schedule for hydrocarbon recovery implies that final remediation plans will be completed before completion of tests to obtain monitoring and recovery data. Without this data, it is not possible to make an appropriate selection of a final remediation alternative. LIFE recommends that preparation of detailed remediation plans not be initiated until monitoring and recovery are completed, and required data obtained.

Response:

We assume that LIFE is referring to hydrocarbon interim action schedule presented in Figure 12-3 of the workplan that shows an overlap in Phase I and Phase II components. MDHES agrees and the schedule will be revised to allow adequate MDHES review of Phase I Feasibility Study before Phase II will be started.

Also note that due to the delay in start-up, these and all schedules will be revised.

Comment:

6-16 The Workplan assumes that air stripping and activated carbon will effectively treat recovered groundwater. No bench tests are indicated for this treatment. As with many of the other treatments under consideration, the effectiveness of the air stripping and activated carbon treatment system should be determined on a pilot-scale before it is put into use.

Response:

Air stripping is a proven technology that should easily treat the volatile

organic contaminants present in the groundwater beneath the site. Similarly, activated carbon adsorption systems are common and effective treatment for most semivolatile compounds.

Both air stripping and carbon adsorption will be tested as part of the Phase I program. If effluent shows significant levels of contaminants, then other technologies to treat site contaminants will be evaluated prior to implementation of the final remedy.

Comment:

6-27 Injection of tracer substances with hazardous properties is likely to be contrary to federal and state laws, and is imprudent for use in a drinking water aquifer. LIFE recommends that no tracers with hazardous properties be employed on the site.

Response:

MDHES agrees and accordingly the workplan was revised to evaluate tracers that are not regulated as toxic substances. Candidate tracers that will be further evaluated are listed in Table B-1 of the workplan.

SECTION 7 - SLUDGE MANAGEMENT PLAN

Comment:

1. 7.B.2 Envirocon is stating that using thermal treatment to dispose of sludge may result in hazardous ash, therefore, Envirocon is suggesting "thermal treatment at lower temperatures" and thus not achieve the overall level of volume of reduction, but would result in non-hazardous ash material. We demand that the sludge be completely cleaned up and all the materials be disposed of properly according to CERCLA guidelines.

Response:

Both lower temperature and higher temperature thermal treatment will be evaluated the sludge treatability program. The sludge ultimately will be remediated according to CERCLA guidance and in substantive compliance with applicable Federal and State regulations.

Comment:

2. No mention is made of how the sludge will be contained so as not to harm anybody or our land. No transportation off-site is addressed. We want to see in writing how the sludge will be contained, how it will be properly disposed of and transported off site. We want this all to be according to CERCLA guidelines, RCRA standards, standards according to the Solid Waste and Disposal Act, the Clean Water Act, and any other applicable statutes and regulations.

Response:

At this point in the program, studies are being implemented to determine the best way to remediate the sludge. Once options are evaluated, then finding will be prepared in a feasibility study report that MDHES will review. The option that MDHES will select will be in substantive compliance with applicable statues and regulations.

Comment:

3. 7.B.1.1 The mixing of the soil should be discrete only. We demand that no composite sampling be done.

Response:

In this particular case where evaluation of representative composition of materials are important, compositing is an appropriate procedure. Compositing will be avoided in other areas of the site investigation where it is important to know extent of field contamination.

Comment:

4. 7.1 If the overflow pond was much larger than it is now, what has happened to all that oil and where is it? We demand that this lost oil be addressed and cleaned up.

Response:

MDHES has historic photography that show the ponds to be much larger than at present. The area that has since been buried will excavated or cored to determine the fate of contaminants in this area.

Comment:

5. 7.5 Which law applies here? We want it in writing which law is being followed and why.

Response:

The laws referred to in this section is the Resource Conservation and Recovery Act (RCRA). Any transport or disposal of liquids containing hazardous material will be done in accordance with the substantive requirements of RCRA.

Comment:

6. 7.6 "Method will be performed only once per sample location" as quoted from Workplan is definitely not enough to make an educated and responsible decision. We demand more sampling be done in more than one location.

Response:

This comment refers to the planned analysis for PCBs and pesticides in free liquids and in sludge samples. MDHES believes that one analysis per sample location is appropriate. This type of investigation is different from ground-water monitoring where contaminant extent and magnitude may change over time.

Comment:

7. 7.7 We demand no composite sampling be done. Only discrete sampling should be done to scientifically and responsibly determine the extent of the pollution.

Response:

Composite sampling will be done to determine a representative characteristic of the sludge. Discrete sampling will be done to determine boundaries of sludge and extent of contaminated soils.

Comment:

8. 7.12 To determine if the bioremediation is working, composite sampling will be used to analyze results. We demand that no composite sampling be done if a good clean up is to be had in Livingston.

Response:

Composite sampling is appropriate for determining representative characteristics of the sludge, such as for the purpose of bioremediation studies.

Comment:

9. 7.13.14 Time is important. It appears that soil washing would have to be done in batches, where is all the water going to come from to clean the soil and how will it affect our water table, and then how will it be responsibly disposed of so as not to further harm our environment?

Response:

The water needed in the soil washing process would come from the public water supply or from local wells. The amount of water needed for this process is not so substantial as to impact other water users or impact the water table.

The rinse water would be treated to remove organic contaminants and discharged in accordance with applicable regulations or potentially reused for soil washing.

Comment:

10. 7.8 Are the means outlined indicative of proper calculation of the estimates of sludge and contaminated soil volumes?

If all the samples are composite, there will not be a responsible estimated amount for analytical testing.

Overall, the sludge management plan does not specify how clean is clean, too many uncertainties with the treatment of wastes, how it will be disposed of and transported and held on site. All the samples are to be done in a composite way instead of in a discrete way.

According to the GeoTrans report, it was suggested that the "Liquid and solid wastes in the sludge disposed areas must be contained to prevent further contamination of water and soils, and to eliminate exposure to humans and the environment. Burlington Northern should submit a plan for removal, containerization, and storage or disposal of liquids present in the sludge pits. In addition, the sludge should be excavated and stored in a manner where it is protected from precipitation, runon/runoff, and erosion. Leachate should be collected for treatment or disposal, or contained to prevent its reaching the environment. All storage must be on-site or in a RCRA-permitted Subtitle C facility, unless the material is determined not to be a hazardous waste. Any transport off site must be in accordance with the solid waste disposal act, the clean water act, and other applicable statutes and regulations.

During excavation of the sludge, air monitoring shall be performed to ensure that there are not unacceptable risks to either workers or surrounding populations. Nuisance odors will not be allowed. The workplan shall include plans for controlling air emissions and odors while allowing the excavation to be completed".

In addition, another point, after surface water drainage patterns are established, sediment samples should be taken at the point the drainage crosses the site boundary. If contaminants are detected, offsite sampling should be performed and appropriate remediation carried out.

The City of Livingston deserves a responsible and good clean-up of its water and land and air.

Response:

The method outlined is an appropriate means of estimating contaminated soil volumes. As stated earlier, discrete samples will be used to determine extent of contamination, which is then used to estimate amounts of contaminated material.

The sludge management plan at this point identifies only those investigation and tests to determine feasible technologies to treat or dispose of the sludge. Issues of action levels (how clean is clean) and treatment/disposal will be addressed in the Feasibility Study (see Section 7.6.6).

GeoTrans suggested that liquid and solid wastes in the sludge disposal areas be contained to prevent further contamination of water and soils. If the Phase I treatability studies indicate that remediation will take a long time or if in place technologies are not feasible, then MDHES will consider sludge removal and containerization. The workplan states that the liquids will be removed and drummed in the early part of Phase I activities.

Any transport of sludge offsite will be done in accordance to applicable regulations.

During excavation of the sludge, air monitoring will be performed. The air monitoring program will be reviewed and approved by MDHES prior to implementation.

CHAPTER 8 - FINAL GROUNDWATER REMEDIATION

Comment:

1. Modeling and remedial objectives must contain more data on the impact on the aquifer as a whole from operations such as containment, hydrocarbon recovery, decontamination, etc. What effects will these operations have on the city water supply in the future?

Response:

The ground water model will provide information on general impact to the aquifer as well as potential impact to city water supply wells.

Comment:

2. Discharging treated water into the Yellowstone River should be reconsidered. The present and future impact on the river is not being adequately addressed. This water could possibly be re-used to facilitate contaminant migration for recovery.

Response:

The discharge of treated water into the Yellowstone River will only be done if approved and permitted by the MDHES. The possibility of some type of reuse is a good idea and will be considered.

Comment:

3. Some remedial objectives are being formulated before complete data has been obtained in the form of a Data Quality Objectives document, baseline risk assessment, adequate air quality information, etc. EPA procedures

should be followed more closely to ensure a comprehensive and safe clean-up.

Response:

MDHES agrees that remedial objectives for the final ground water remediation are perhaps premature at this early stage of the investigation. Upon completion of the remedial investigation and baseline risk assessment, remedial action objectives will be re-visited in the early stage of the Feasibility Studies. The objectives may be revised based on the new information gathered. This is consistent with EPA guidance.

Comment:

4. So far, remedial objectives speak only from an on-site point of view, when in reality the solvent plume has not yet been adequately defined. Levels of contaminants well above acceptable limits are extending into residential areas and the Yellowstone River. More data and responses are needed in the following areas:

   a. a systematic air monitoring program should be done in the railroad shops, CUT building and private residences to ensure public protection from VOC gases;

   b. systematic soil gas monitoring should be done in affected residential areas, not just a one time only "sniff" reading;

   c. in the instance of air stripping, soil gas venting, incineration of sludges, etc., air quality standards must be strict and adhered to in order to protect public safety.

   d. other airborne contaminants are suspected in the form of atrazine and asbestos and are not being addressed. More extensive off-site sampling for these and other known contaminants should be done. Compositing of these samples should not be allowed.

Response:

MDHES agrees that air monitoring programs should be conducted during the remedial investigation. Envirocon will submit a soil/basement gas sampling plan to attempt to identify gas impact areas. MDHES will review and approve this plan prior to start up. In addition, MDHES will work with Burlington Northern to conduct a PM-10 air quality monitoring program to detect contaminants in respirable particulants.

All remedial actions involving air emissions will be conducted in compliance with applicable regulations and should not impact public health.

MDHES RESPONSE TO LIFE COMMENTS

Comment

5. It is the opinion of LIFE that significant air pollution sources exist at the BN site. The winds of Livingston helps keep sources such as diesel smoke, incinerator effluent and soil gases from the contaminants being a problem. While not predominant, calm days and easterly winds do occur and pollution is evident then. Data should recognize and characterize these sources of air pollution during all wind conditions.

Response:

The PM-10 ambient air monitoring program will be designed and conducted with consideration of these and other factors.

LIFE would also like to include the section on this topic by GeoTrans, Inc. in their original comments on the Work Plan (Exhibit 1):

8.0 FINAL GROUNDWATER REMEDIATION

Comment:

1. Overview. The discussion in this chapter describes many different approaches for remediating the ground water. The schedule suggests that selection of a remedy is as simple as defining the plume, calibrating a model, and using the model to look at the effectiveness of different alternatives. Remediation of a site is not this simple.

   First, remediation targets have to be determined, through an Endangerment Assessment and ARARs evaluation. Next, technologies for the various aspects of remediation need to be reviewed to determine those that will be effective. Biodegradation is mentioned frequently in the work plan, but there are many uncertainties about its feasibility and implementation. A set of remedial alternatives which will encompass all affected media needs to be developed for comparison of predicted effectiveness against the remediation targets. This effort is more extensive than indicated in the work plan.

   As also indicated in the review of the hydrocarbon recovery program, the time schedule (fig. 8-5) is too optimistic. It implies that the final remediation plan will substantially be developed during the period that monitoring data and petroleum recovery data are being generated. No work on bioremediation is mentioned. Proposed work for the period October through March is not listed, but presumably includes a more careful analysis of alternatives. A work plan for this effort is needed.

2. Modeling. The proposed models will not address petroleum hydrocarbon recovery or biodegradation. Modeling will still provide a better understanding of the ground-water system. However, it is uncertain whether permeability data are available for use in the model. Permeability information will be derived from the hydrocarbon recovery tests, and from packer tests of a bedrock well. Much more information is needed. Slug tests should be performed on the new monitoring wells, and on existing monitoring wells in the areas of greatest contamination. Short-term pumping tests should also be performed in LPW-1.

   It is likely that design of recovery well systems will require development of different scale models than mentioned in the work plan. A model of the entire site is unlikely to contain sufficient detail or numerical accuracy to evaluate well interference effects or flow paths.

   If a model is to be used for selection of remedial approaches, or to evaluate the effectiveness of an approach against remediation criteria, it should be provided to MDHES for their review. An adequate review may require three to four weeks.

Response:

These and all other recommendations of GeoTrans have been considered by MDHES. Particularly, remediation targets will be established during the early stages of the Feasibility Study, upon completion of the Endangerment Assessment (Public Health Evaluation) and analysis of ARARs.

Schedules will be revised to provide adequate time to collect data and sufficiently characterize contamination before final ground water remediation is started.

MDHES will work with Burlington Northern and Envirocon on the planning and performance of any ground water modeling tasks.

CHAPTER 9 - FIELD SAMPLING AND CONSTRUCTION PROTOCOL

Comment:

LIFE feels that the data quality sections of this work plan do not adequately fulfill the requirements of a Data Quality Objectives document. The DQO document must be submitted to the MDHES prior to further response decisions.

Regarding the technical aspects of this section, we include two recommendations from the GeoTrans, Inc. report (Exhibit 2):

MDHES RESPONSE TO LIFE COMMENTS

Packer tests are proposed for permeability testing, using pressures that would not exceed 0.5 psi/ft to avoid hydrofracing the formation. If 0.5 psi/ft is sufficient to cause fracturing, then inflation of the packers to 250 psi is also likely to do the same. A different packer with lower inflation pressures may be necessary.

A small portion (10%) of the samples will be split for analysis by another laboratory contracted by the State. This allows for an independent check of the containment data and provides some level of assurance to MDHES and the public that data are being properly analyzed.

Response:

The Data Quality Objectives have been improved significantly since MDHES review of an earlier version of the workplan. Further improvement is needed and Envirocon will submit a revised DQO Section (see Section 10.5) based on further MDHES review and applicable public comment to date.

Both recommendations stated above will be followed. Lower inflation pressure packers will be used to prevent fracturing of the aquifer. However hydrofracing is generally not a significant in unconsolidated alluvial aquifers. MDHES will take splits on an opportunistic basis and analyze them either at the MDHES laboratory or an independent contract laboratory.

COMMENTS ON SECTION 10 OF THE WORK PLAN

Comment:

We concur with the shortcomings of the DQO's as stated in the GeoTrans report.

We are concerned that a problem in accuracy may result from the detection limits being so close to the MCL's. Therefore, we are requesting that twenty percent (20%) of the samples be split to further insure accuracy of results.

We are also concerned that previously collected data may be unreliable due to the absence of QA/QC goals.

Response:

The Data Quality Objectives have been improved substantially based on our review of the early versions of this section. Further improvements will be made based on issues brought forward during public comment. For the most part, however, detection limits for water samples are low enough to detect contaminants below their respective maximum contaminant levels (MCLs).

MDHES RESPONSE TO LIFE COMMENTS

This investigation will have performance and system audits to evaluate Quality Assurance and Quality Control. These procedures are described in Section 10.9 through 10.17 of the workplan. The procedures include duplicates and spike samples with the purpose of assessing accuracy of results.

Our cursory review of previously collected data has not indicated accuracy of validation problems. In that most monitoring wells will be re-sampled under this program, any potential concerns over quality of past ground water data will be addressed by new data collection. For this reason, it is not necessary to do data validation for the historical data.

CHAPTER 13 - SITE CHARACTERISTICS SUMMARY

Comment:

Not being knowledgeable in the field of hydrogeology, LIFE relies on the GeoTrans, Inc. report (Exhibit 2) which has the following recommendations:

h. Hydrologic Testing Program - A work plan for the characterization of the ground-water system sufficient for the detailed analysis of ground-water containment or remediation alternatives is needed in the work plan.

A partial list of needed information includes:

Depth to bedrock
Lithology of alluvium and bedrock
Permeability and porosity
Hydraulic potential
Sorptive properties
Organic-carbon content
Residual saturation
Fluid densities and viscosities
Volatility of fuels and solvents

Activities proposed in the Interim Remedial Measures Work Plan address some of these data, but a more comprehensive plan is needed. For example, permeability information will be derived from the hydrocarbon recovery tests, and from packer tests of a bedrock well. Much more information is needed. Slug tests should be performed on the new monitoring wells, and on existing monitoring wells in the areas of greatest contamination. Short-term pumping tests should also be performed in LPW-1.

The Interim Remedial Measures Work Plan proposes that ground-water flow modeling be performed. The proposed models will not address petroleum hydrocarbon recovery or biodegradation. Modeling will still provide a better understanding of the ground-water system. It is likely that design of recovery well systems will require development of dif-

ferent scale models than mentioned in the work plan. A model of the entire site is unlikely to contain sufficient detail or numerical accuracy to evaluate well interference effects or flow paths.

This chapter also discusses the hydrocarbon and solvent plumes. In looking at the data and plume maps it is readily apparent that there is insufficient data at this time to make any determination of the boundaries of the plumes. Many additional OFF-SITE wells are needed along with further testing to determine the mobility and dynamics of the solvents within the aquifer. The original GeoTrans, Inc. report (Exhibit 1) specifies a minimum of 7 new wells.

The GeoTrans report (Exhibit 2) talks about the problem of plume delineation:

f. Plume Delineation Program (new task) - A program to delineate the extents of the hydrocarbon and solvent plumes must be developed. New monitoring wells proposed in the Interim Measures Workplan provide a good start to this program but serve a different, but related, purpose. The plume delineation program differs from the monitoring program in that the monitoring program is intended to detect long-term changes in water quality and provide evidence that ground-water remediation is occurring, while the plume delineation program is for the purposes of providing information for the PHE and remedy selection. We envision the plume definition wells being sampled at least twice for QA reasons, but that plume definition wells would not generally be part of the long-term monitoring program. However, it may be appropriate to revise the monitoring program to include some of the plume definition wells in the future.

Sources of solvents should be investigated. There may be several solvent plumes present at the facility caused by multiple sources, and by solvents being present dissolved in water and in both LNAPL (light non-aqueous phase liquids) and DNAPL (dense NAPL). DNAPL has not yet been detected, but no careful search has been performed. Because DNAPL movement will largely be determined by the topography of the bedrock/alluvium contact rather than by ground-water flow directions, a DNAPL plume may be moving in a different direction than the dissolved solvent plume. The best approach to determining if DNAPL is present is to identify the potential sources of solvents in the ground-water system, and install monitoring wells completed at and just above the bedrock/alluvium contact. Burlington Northern should design a program for identifying solvent sources and determining whether LNAPL and/or DNAPL are present. If detected, their extent must be determined and alternatives investigated for their remediation.

Other sources of concern are the waste water treatment plant sludge pit, the cinder pile and its sludge pit, the separator and overflow ponds, and the recently removed storage tanks. Each of these sources

should be investigated through a drilling and sampling program. Coordination with the long-term monitoring program would be appropriate, but the proposed monitoring near these sources appears to be inadequate for plume and source characterization.

The extent of the plume migration to the north and east of the site must be determined. Additional wells are needed between areas where contaminants have been detected and the Yellowstone River especially near the L-Street, Q-Street and Rainbow Motel wells. If the materials are as permeable as indicated by Envirocon, then the solvent plume may have migrated further than suggested in the proposed monitoring program. The plume may have moved directly toward the Yellowstone River. Commonly, however, contaminant plumes turn and move parallel to rivers for some distance before intercepting the river. The Work Plan should anticipate these possibilities, and include contingencies for additional monitoring wells to define the extent of the plume. A phased approach would be appropriate, with construction and sampling of additional wells until the full extent of the plume has been determined.

The vertical distributions of hydraulic head and of contaminants are not adequately characterized. The proposed long-term monitoring program will provide some information, but more data will be required. The plume delineation program should include installation of additional nested monitoring wells.

The possibility of nitrate contamination is not addressed. The Livestock Car Unloading Area is possible source for this contaminant, and the DQO report should address sampling for nitrate.

Response:

Chapter 13 is a summary of site characteristics known as of the date of the workplan - August 1989. Many areas will require additional characterization, which the current workplan and planned additions will address.

These and other recommendations by GeoTrans were based on review of an earlier version of the workplan. These recommendations were incorporated in the current workplan that LIFE had the opportunity to review.

MDHES agrees that plume migration to the north and east of the site will need to be further defined. This will be done with additional wells that will be located upon review of the results of the first phase of well installation and sampling.

MDHES RESPONSE TO COMMENT SUMMARY
BY DRAKE ENGINEERING INCORPORATED
ON THE
INTERIM REMEDIAL MEASURES WORK PLAN
LIVINGSTON RAIL YARD APRIL 1989

GENERAL QUESTIONS AND COMMENTS

Comment:

1. Is the document misnamed? -- The document appears to present more of an outline approach rather than a real work plan for accomplishing the required remedial investigations, feasibility studies, and actions. In particular, the schedules shown in Section 12.0 do not provide sufficient information to allow even rudimentary project management, performance measurement, or schedule control. A few dated, measurable, milestones are needed for each task represented on the schedules. In addition, since resources and responsibilities are not identified for the tasks, there is no basis by which to judge if the "plan" is realistic or can be executed, even remotely, as written.

Response:

In order to ensure proper completion of the work, Burlington Northern has agreed to provide funding for MDHES representatives to oversee the implementation of the Work Plan. While it is important that the Work be performed in a timely manner, it is equally important that the work be properly performed. If the work is not being done to MDHES expectations and standards, the MDHES representatives will have the authority to require the work to be done properly.

Comment:

2. What are the technical objectives? -- Principal plant factors, functional and performance requirements, goals, and technical objectives, are missing or difficult to find. Clearly stated, measurable, objectives and requirements are needed to guide planning and execution of the work and to allow evaluation of the efficiency of candidate remediation methods and technologies.

Response:

The Remedial Investigation is intended to develop the information needed for setting the remedial goals, by determining contaminant levels within different media and evaluating pathways. This information will be used to perform a Public Health Evaluation. The Feasibility Study will use this information to evaluate various remedial options. When the Record of Decision is prepared, clearly stated remedial goals will be stated. Finally, the remedial design documents will include technical specifications for use in implementation of the remedy. Thus the process becomes more and more specific as it proceeds.
The Interim Measures Work Plan also involves sludge management and diesel

recovery operations. These are Interim Actions and therefore do not require that final remediation goals be set before their implementation.

Comment:

3. What are the cleanup priorities? -- Presumably, problems which present more immediate or greater risks to public health and the environment should receive priority treatment. The document provides no statistical, epidemiological, or risk data to guide prioritization or timing of effort. Available information seems inadequate to allow rational decisions on when to stop studying the problems and when to start remedial action.

Response:

A Public Health Evaluation will be performed for the site before the remedy is selected. Thus remedy selection will be guided by the risks to public health. The remedy will also be consistent with ARARs unless certain conditions specified by the National Contingency Plan apply. Environmental protections are built into many of the ARARs. The questions of when to stop investigations and to start remedy is always a difficult one, especially at complex sites. When the RI/FS is performed by a PRP, that point comes when the regulatory agency believes it has sufficient information to write a Record of Decision. MDHES believes that this Work Plan, combined with an additional phase of water and soil sampling, and proper oversight of BN's activities will provide the needed information for performing a Public Health Evaluation and a Feasibility Study, leading to a Record of Decision.

TECHNICAL QUESTIONS AND COMMENTS

Comment:

1. Where is the diesel fuel and how much is there? -- Information concerning the plume of diesel fuel is confusing and contradictory. On page 6-1, paragraph 3, the plume is described as covering 900,000 square feet and containing 300,000 gallons. This yields an average calculated thickness of about 0.045 feet which is considerably less than depicted in Figures 6-1 and 13-15. On page 8-3 it is stated that the diesel fuel plume originated at the fueling facilities and has moved only slightly since being spilled. The figures depicting the plume, however, show it to be centered over 900 feet from the closest fueling station and about 2700 feet from the other 2 fueling areas. The isopleths depicting floating plume thickness show a reasonably symmetrical mounded plume which has migrated some distance from three non-symmetrical point sources. It is difficult to imaging a mechanism which would result in such a configuration.

Response:

The calculation provided in the comment ignored the porosity of the materials, which is likely to be in the range of 10 to 20%. This results

in an increase in average thickness from 5 to 10 times, as the diesel cannot occupy space occupied by solid particles. Thus the average thickness in the aquifer for 300,000 gallons of diesel covering 900,000 square feet would be 0.22 to 0.45 feet. This assumes that the diesel is present as a discrete layer floating on top of the water. These values are consistent with those depicted in Figures 6-1 and 13-15. In summary, the estimate of 300,000 gallons is reasonable given the available data, but may not include the diesel present in the vadose zone.

THe plume map is a smoothed depiction of diesel thickness in the aquifer. However, it is clear that the measured thicknesses do not correlate well with the identified "potential sources" and that additional characterization work will be required before implementation of the remedy.

Comment:

2. Is there a bias for biologic treatment? -- Biologic treatment seems to be emphasized throughout the plan to the exclusion of fair consideration of other feasible technologies. In particular, the discussions on pages 7-15, 7.A.3, and 7.A.2 are seriously misleading concerning the ability of high temperature incineration to provide a superior solution for sludge treatment and disposal. In Section 7.A.3 the authors make the amazing assertion that "The impact of high temperature incineration on the sludge was evaluated using 2.5 grams of sludge ... incinerated in a laboratory oven at 800°C ... for one hour." Such a test is virtually worthless for accomplishing the stated purpose. The amount of material is minuscule, it may not be representative of all sludges, the temperature is too low, and the combustion process does not model that of any known commercial incinerator. In Section 7.B.2, the suggestion that incineration studies at temperatures below 800°C might then yield satisfactory combustion removal efficiencies and sufficiently non-leachable residues implies a poor understanding of the pyrochemistry of EP Tox metals. In reality, truly high temperature incineration is required to successfully address the sludge disposal problem. Properly designed high temperature (1100-1300°C) incineration systems can economically produce a low volume, non-leachable, benign, vitrified product which passes EP Tox leach criteria and does not require off-site disposal.

   In addition, the discussions concerning biologic, enhanced biologic, and soil washing techniques conveniently ignore the potentially adverse effects of surfactant and nutrient addition, acidification, aeration, and agitation on the EP Tox metal leaching behavior of the sludges and their biodegradation residues.

Response:

MDHES agrees that higher temperatures are necessary to test the feasibility of incineration, and that nitrification may produce a material that would not fail the EP Toxicity Characteristic or Toxicity Characteristic Leaching Procedure tests. Incineration should be carefully considered.

MDHES also agrees that characterization of the products of the biologic,

enhanced biologic, and soil washing techniques is necessary, including the leaching behavior. It is important to also remember that the EP Tox and TCLP tests are to be used only for determining if the waste material is hazardous under RCRA, but not necessarily for whether treatment of the waste is required or for setting targets for treatment efficiencies.

Comment:

3. What is the fate of secondary wastes? -- The discussion in Section 3.3.3 concerning the groundwater treatment facility does not address treatment and disposal of stripper air or contaminated activated carbon. Similarly, in Section 7.0, the discussion of sludge treatment alternatives fails to address ultimate disposal of secondary wastes from the primary treatment options. Is on-site treatment and disposal of all wastes a priority for this program?

Response:

Secondary wastes will be treated, if onsite disposal is used, in a manner to ensure that further contamination of the site and environs does not occur. If offsite disposal is used, then RCRA will apply. In either event, however, the substantive requirements of RCRA will apply if it is determined to be applicable.

The treatment options being considered tend to favor onsite treatment, although both onsite and offsite incineration will be considered. Onsite disposal is not considered to be a priority by MDHES.... for one hour." Such a test is virtually worthless for accomplishing the stated purpose. The amount of material is minuscule, it may not be representative of all sludges, the temperature is too low, and the combustion process does not model that of any known commercial incinerator. In Section 7.B.2, the suggestion that incineration studies at temperatures below 800°C might then yield satisfactory combustion removal efficiencies and sufficiently non-leachable residues implies a poor understanding of the pyrochemistry of EP Tox metals. In reality, truly high temperature incineration is required to successfully address the sludge disposal problem. Properly designed high temperature (1100-1300°C) incineration systems can economically produce a low volume, non-leachable, benign, vitrified product which passes EP Tox leach criteria and does not require off-site disposal.

In addition, the discussions concerning biologic, enhanced biologic, and soil washing techniques conveniently ignore the potentially adverse effects of surfactant and nutrient addition, acidification, aeration, and agitation on the EP Tox metal leaching behavior of the sludges and their biodegradation residues.

Response:

MDHES agrees that higher temperatures are necessary to test the feasibility of incineration, and that nitrification may produce a material that would not fail the EP Toxicity Characteristic or Toxicity Characteristic Leaching Procedure tests. Incineration should be carefully considered.

MDHES also agrees that characterization of the products of the biologic, enhanced biologic, and soil washing techniques is necessary, including the leaching behavior. It is important to also remember that the EP Tox and TCLP tests are to be used only for determining if the waste material is hazardous under RCRA, but not necessarily for whether treatment of the waste is required or for setting targets for treatment efficiencies.

Comment:

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Response:

Secondary wastes will be treated, if onsite disposal is used, in a manner to ensure that further contamination of the site and environs does not occur. If offsite disposal is used, then RCRA will apply. In either event, however, the substantive requirements of RCRA will apply if it is determined to be applicable.

The treatment options being considered tend to favor onsite treatment, although both onsite and offsite incineration will be considered. Onsite disposal is not considered to be a priority by MDHES.

MDHES Response to Comments by
Gretchen Rupp, P.E.
on
Envirocon's Interim Remedial Measures Workplan
for the Livingston Rail Yard
Livingston, Montana

SECTIONS 1-3: Procedural; not reviewed.

SECTION 4: FIELD INVESTIGATION

Soils Investigation

Comment:

This section should include a description of the exploratory sampling to be conducted at the Mission Wye. Proposed sampling methods, numbers and types of projected samples, parameters for analysis, and a figure showing tentative sampling locations should be added.

Response:

Investigation of the Mission Wye is to be accomplished, according to the Partial Consent Decree, under a separate agreement and workplan. There will be opportunity for public comment on this program at a later time.

Comment:

Analysis of arsenic, lead, mercury and selenium in the various solid wastes should not be by ICAP. This method is very imprecise for these elements; its use is only justified if the sampled matrix is known to have high concentrations of these elements. Proper methods are: arsenic and selenium - AA with hydride generation; lead - flameless AA; mercury - cold vapor.

Response:

MDHES agrees, and the Workplan will be changed accordingly.

Comment:

Single-sample metal analyses are not sufficient for the acidic clay sludges (on-site and Mission Wye). These will contain very high metal concentrations. Every sample collected at these sites should be analyzed for heavy metals.

Response:

Four test trenches will be dug in the disposal area for the acid sludges (Figure 4-7). A sample from each of these pits will be analyzed for metals.

Comment:

It's not at all clear from the workplan how soils beneath the various contaminated materials will be sampled. Sampling should extend at least 5 feet below the base of each solid waste deposit. Since significant vertical stratification of contaminants is likely, each sample should include a vertical interval of no more than one foot.

Response:

Sampling for vertical extent-of-contamination purposes will be performed after shallower, highly contaminated materials such as sludges) have been removed. Beneath source areas, samples will extend to a minimum depth of 5 feet below the ground surface or below the bottom of a sludge pit whichever is deeper, at 2-foot intervals. In other areas, samples will be collected at the surface, and at depths of 3 and 5 feet. The workplan will be revised to clarify this point.

Comment:

Before choosing sampling locations for nonpoint source soil sampling, Envirocon should consult retired railroad employees. They can provide useful information about rail yard waste handling practices, including customary liquid waste dumping locations.

Response:

MDHES and Envirocon has made an attempt at contacting employees regarding waste handling practices. If other knowledgeable retired employees are available, Envirocon will interview them or MDHES learns of any people with specific knowledge about the facility, they will be interviewed.

Groundwater Monitoring Well Locations

Comment:

Proposed well 89-7, designed to search for evidence of past kerosene spills, should be screened at the water table, not the bottom of the aquifer.

Response:

MDHES agrees. However, during Phase I of the monitoring program, it is more important to determine whether DNAPL is present. Drilling of 89-7 will be temporarily stopped to determine whether kerosene is floating on the water table. If so, an additional monitoring well will be installed during Phase II.

Comment:

For Phase I, new wells have been sited to define aquifer characteristics, ascertain bedrock elevations and define plume dynamics. It is even more vital to assess the risk to Livingston's drinking-water wells. Two wells that are within the edge of the solvent plume have been taken off-line. The B Street and D Street, Clarence and Werner wells, and the two new city wells, are cross-

gradient to what are thought to be the major contaminant sources. Nonetheless, it should not be assumed that they are invulnerable to contamination originating at the rail yard; trace contaminants have been detected in several of these wells. If, during any round of groundwater monitoring, contamination is found in any of the wells at the west end of the site (L-87-1, 89-5, LS-10, LS-9, LS-6 and L-88-9), new monitoring wells, upgradient from the city wells, should be installed. Such wells should also be installed if further contamination is detected in any of the pumping city wells. Design of the RI/FS must acknowledge that protection of drinking water is a primary goal of site remediation in Livingston.

Response:

There is no conclusive evidence that hydrocarbon constituents or solvents have migrated from the BN site to the B and D Street or new city wells. MDHES agrees with the recommendation that additional monitoring wells be installed between the city water supply wells and the railyard. Phase I monitoring data will be used to determine whether additional monitoring is needed.

Yellowstone River Study

Comment:

Water and sediment sampling should be done when the river is at its lowest.

Response:

Sampling will be performed during the time of year when flow is lowest (November through February), before runoff starts. However, because of the uncertainty about when runoff will start, it will be prudent to make sure that sampling is not delayed too long.

Comment:

Recent groundwater monitoring data (December 1988 and May and June 1989) indicate that groundwater containing solvents may now be discharging to the river along the reach between Q Street and the city waste-water treatment plant. A walking survey to find and sample springs and seeps along this reach of riverbank should be added to the Yellowstone River Study. In addition, storm drain outfalls along this reach should be sampled. This should be done at least three days after the last measurable precipitation, to characterize groundwater without dilution from surface runoff.

Response:

MDHES agrees, and the Workplan will be modified accordingly.

SECTION 5: GROUNDWATER MONITORING PROGRAM

Monitoring Well Network

Comment:

As they come on line, the two new city wells should be added to the monitoring network. The L Street well should also be monitored. In the event of a fire, the city may need to turn to this well. Recent data suggest there may not be contamination there, but this is not certain. All city wells should be monitored for volatiles on a monthly, not quarterly, basis.

Response:

MDHES agrees that city water supply wells should be monitored for volatiles on a monthly basis. The workplan will be modified accordingly. If the L Street is scheduled to be used, the City should contact MDHES to schedule inclusion in the monitoring program. As the new city wells come on line, the City should contact MDHES for consideration of the wells in the monitoring network.

Comment:

The recharge/discharge relationship between the alluvial aquifer and the Yellowstone River must be defined in order to predict contaminant movement in the eastern part of town. As part of water level monitoring, river surface elevations should be measured monthly via staff gages or level recorders. This should be done in the vicinity of the waste-water treatment plant discharge, plus at least two locations between the interstate bridge and the waste-water discharge.

Response:

Monthly stage measurements are planned to coincide with ground water level measurements (Table 5.1). Because of the low river gradient in this area, it is not considered necessary to make monthly measurements in other areas. However, a one-time measurement river stage at 3 or 4 points will be made to better define the river gradient in the vicinity of the interstate bridge and waste-water treatment plant.

Comment:

It is likely that there are elevated metal levels in the groundwater beneath the acid sludge at the Mission Wye. This location must be added to the proposed monitoring network. The monitoring can be done either through a suitably-located private well (with MDHES concurrence) or by installing a new well just outside the downgradient edge of the waste-covered area.

Response:

An investigation at the Mission Wye is not addressed in this workplan, but will be addressed in other investigations.

Private Wells

Comment:

The stated goal of the private well survey is to find the "approximate zero boundaries" of the two contaminant plumes. This will be done by sampling outward from the known plumes until no contamination is detected. The workplan should cite the MDHES review function in a phased study such as this: the agency must agree that the edge has been located, and sampling further outward is unnecessary. Since these boundaries are expanding outward, this edge-location exercise should be done annually.

Response:

MDHES agrees. The Workplan indicates that the private wells used to determine the limits of contamination will be sampled quarterly. MDHES will review each report submitted by BN and determine whether the plume is increasing, remaining the same, or decreasing in size. Installation of additional monitoring wells to define the extent of the plume is likely.

Comment:

May-June 1989 sampling showed total petroleum hydrocarbons in excess of 500 ppb in some off-site wells. Private wells cannot be assumed to be immune to petroleum contamination. They should be tested for TPH, as well as volatiles.

Response:

The TPH analyses will also be performed (See Table 5-10). However, there may be other sources for TPH, as for solvents, and therefore TPH above the detection limit does not necessarily indicate migration from the BN site.

Groundwater Monitoring Program

Comment:

The same comment applies here as for the soils investigation: ICAP is not appropriate for As, Se, Hg, or Pb.

Response:

MDHES agrees, and the Workplan will be modified.

Comment:

Detection of any solvent compound in a (pumping) city drinking-water well should trigger immediate collection and analysis of another sample from that well, for confirmation of the original data. The City of Livingston should be notified immediately of positive contaminant results in drinking-water wells.

Response:

The City will be supplied the results of analysis of city water samples at the same time they are provided to MDHES. If contaminants are detected in city water samples, the wells will be resampled.

Comment:

Well 89-6 (below the packing-plant waste pit) should be tested at least twice for nitrates.

Response:

Testing for nitrates will be performed once, and will be performed again upon MDHES review of the data.

Comment:

Reports on monitoring data should flag offsite wells that have contaminant levels exceeding drinking-water standards.

Response:

Envirocon will indicate those levels which exceed MCL's in its periodic reporting. All results will be, however, reported.

Comment:

What are the "normal background concentrations" of metals in this aquifer? This is not established. Report all of the groundwater metal data; let the data users do their own interpretation based on data from upgradient wells. One-time metals analysis in groundwater is not sufficient. Metals should be analyzed in at least the first two samples from each well.

Response:

MDHES agrees that background concentrations have not been determined, and that all data should be reported for metals. Following the analysis of samples for metals, the data will be evaluated to determine whether additional sampling is needed.

SECTION 6: PETROLEUM HYDROCARBON RECOVERY PLAN

Comment:

What will be done with the diesel recovered in the pumping test?

Response:

A portion of the recovered diesel will be saved for use in laboratory tests. Samples will be collected to determine whether the remainder can be recycled. If not, it will be disposed of in a manner consistent to the regulations governing the transport, storage, and disposal of these type of wastes.

Comment:

The factor Envirocon has used to estimate the product depth in the vadose zone based on its thickness in monitoring wells is not universally agreed upon. It may not be appropriate to begin these tests without a better idea of how much diesel is present within a vertical section as a continuous lens and in residual sorbed form.

Response:

Any factor used will not have universal agreement; the true factor is a function of both fluid and soil properties. In any event, the true value of the factor will have no impact on the design of the product recovery system, but rather affect the amount of diesel remaining after the product recovery is complete. There is no reason to postpone the tests.

Phase 1 Hydrocarbon Recovery Evaluation

Comment:

Regarding on-site recovery tests, the text states "it is anticipated that the volatile compounds present will be limited to nonhalogenated aromatic hydrocarbons." For evidence it shows tabulated data from nearby monitoring wells (Table 6-3). Most of the compounds quantified in the table are halogenated aliphatics. The treatment system will have to be capable of handling volatile solvents.

Response:

An air stripper is intended as part of the treatment system, and should remove the halogenated aliphatic compounds.

Comment:

Table 6-3 shows total trichloroethene as below detection in two wells in which cis-DCE alone was present at levels exceeding 200 ppb.

Response:

These observations are not uncommon with low concentrations of organic compounds.

Comment:

It's premature to include a reinjection permit application. With the recovery/treatment unit not yet operating, the characteristics of the recharge water cannot be assumed to be well known.

Response:

Teh discharge of any liquid from any recovery/treatment system will be evaluated to determine if a discharge permit is required. The quality of any wastewater to be (re)injected will be subject to agency approval.

Laboratory Testing

Comment:

Retec more than once commented on the "thick, weathered" appearance of diesel from test holes on the site. Fresh diesel used in laboratory tests may yield results not representative of field conditions, especially with respect to sorption, drainage properties and biodegradation potential.

Response:

Recovered diesel fuel will be used for the laboratory testing (see page 6-26).

SECTION 7: SLUDGE MANAGEMENT PLAN

Sludge Characterization

Comment:

It is very likely that contaminants have leached into the soils beneath the sludge pits. It is not enough to sample "until native soils are encountered." Cores should be continued five feet into the soil or deeper. Minimize compositing. The proposed program of compositing will smear away important vertical variation in the soil profile.

Response:

Soils beneath the sludges will be sampled once the removal is complete to document any migration of contaminants into deeper soils. With the sludges in place, it will be very difficult to impossible to collect soil samples beneath the sludge without cross-contamination problems. The sludge will be composited, because the intent of characterization is not to determine extent of contamination, but rather those characteristics that will affect treatment.

Comment:

All drums of liquid may not be alike - in place, the sludge pits will have an oil sheen atop rainwater, which will grade downward into petroleum products.

Response:

Because the contents of the drums may be different, each drum will be sampled for the development of a composite sample from each disposal area. This information will be used to determine the most appropriate means of disposal for the drummed liquid.

Comment:

It has not been established that there will be a sharp boundary between clean and contaminated soils that will be visible to field personnel. To ascertain the volume of soil requiring treatment, several samples must be taken from each vertical core. The lowest ones should be below the zone of apparent contamination.

Response:

Soil remediation will be investigated following disposal or treatment of the sludges. The Workplan will be modified to clarify this issue.

Sludge Management Option Evaluation

Comment:

Stabilization/solidification should be considered. Mixing sludge with contaminated soil may dilute the oil and grease enough that the fixatives are not compromised. There has been a great deal of work done lately on fixation of oily wastes.

Response:

It is more desirable to treat a low volume, high concentration waste, than to dilute the waste, creating a high volume waste.

Sludge Management Plan

Comment:

Not reviewed. Unless all treatability studies have already been done, full-scale remedial planning and implementation cannot be carried out this year. It is assumed there will be another public comment period before implementation.

Response:

The Phase II - Sludge Management Plan activity involves preparation of a Feasibility Study report which will be available for public comment.

SECTION 8: FINAL GROUNDWATER REMEDIATION

Remediation Objectives

Comment:

Has it been established that cleanup goals will be based on what is "technologically achievable?" What about human health? What about ARARs?

Response:

Final ground-water remediation will be addressed through the normal CERCLA process, involving a risk assessment and ARARs analysis.

Groundwater Modeling

Comment:

Proposed models must be reviewed and approved by MDHES.

Response:

MDHES agrees. All interim products of the workplan will be reviewed and approved by MDHES.

Dissolved Plume Remediation

Comment:

Is the proposed "interim field investigation program" distinct from other investigations described elsewhere in the workplan? Clarification is needed. If new activities are being proposed for the 1989 field season detailed descriptions are in order.

Response:

The "interim field investigation program" mentioned at the top of p. 8-6 refers to the work discussed in Chapter 4 (installation of wells 89-3; 89-8, A, B, and C; and 89-9).

SECTION 9: FIELD SAMPLING PROTOCOLS

Field Documentation

Comment:
Field logbook has to be bound with sequentially numbered pages; entries in ink only; every day's entries signed by all field personnel; logbook under lock and key when not in use. This section needs to be revised to comply with CERCLA prescriptions.

Response:

MDHES agrees, and the Workplan will be modified.

Equipment Decontamination

Comment:

Unless there is a sensitive real-time method for checking the decontamination, its effectiveness cannot be assured. "As necessary" has no place in a decon protocol; field personnel must go through an entire, rigorous procedure that has previously been shown to be effective.

Response:

MDHES agrees, in part. Decisions need to be made in the field concerning whether cleaning agents need to be added. A fresh water rinse of drilling and soil sampling equipment must be done if cleaning agents are used. As the Workplan is written, the complete procedure must be followed, but with the option to repeat portions if deemed necessary. In MDHES's view, repetition should not be necessary if a step is carefully and completely done, unless equipment is accidentally contaminated after completion of a step. Decontaminated equipment should be protected from accidental contamination.

Comment:

When will equipment be deconned? After every station? At the end of the day? After an entire sampling effort? Great numbers of samples may be ruined by doing this wrong. Heavy equipment can be decontaminated at the end of an event. All other items must be cleaned between stations. This includes all downhole tools, backhoe buckets, and sampling gear.

Response:

Drilling rigs and backhoes will be decontaminated at the beginning of their use on site, and before leaving the site. Other sampling equipment will be decontaminated before use, between each individual use, and at the completion of the sampling episode (before leaving the site).

Test Excavations

Comment:

Sketch stratigraphy of pit walls, as well as taking pictures. Orient pits so vertical wall gets full sun.

Response:

A sketch of a pit wall will be made. It may not always be feasible to orient the pit as indicated.

Comment:

Borehole logs - soil description should include odor.

Response:

Odor will be recorded, but odor is a subjective determination and influenced by olfactory fatigue.

Groundwater Sampling

Comment:

When sampling for volatiles, wells should never be purged with submersible pumps unless there is absolutely no choice. Purging by "bailer, surface pump or downhole pump" does not constitute a standard procedure! How will sampled water "be poured directly into the sample bottles?" There is great potential during this operation for loss of volatiles.

Response:

Standard monitoring wells will be equipped with a dedicated bladder pump. The problem of volatile loss arises with other wells, especially those equipped with a pump. In these instances, it will be necessary to use the existing equipment to purge and sample the well, even though loss of volatiles will occur. Those wells not sampled using a bladder pump or bailer will be identified in the reports and on maps in order to alert the reader of the sampling method. MDHES agrees that samples should not be poured into sample bottles when volatile compounds are to be analyzed. These samples should be put into the bottle by carefully filling the bottle from the bottom and allowing the bottle to overfill. When samples are collected using a bailer, this requires the use of a special bottom-emptying bailer designed for sampling volatile compounds.

Comment:

The proposed compositing protocol is fine if volatiles are not to be analyzed. If they are, discrete samples only should be collected.

Response:

MDHES agrees. Composite solid samples will not be used where volatile compounds are to be analyzed.

Comment:

River sediment sampling - how will the field team choose sediments from which to sample? Grain size is crucial in determining the level of contamination. How will this be standardized among stations? Field personnel should select the finest sediments available, and grain size analysis should be done.

Response:

It will be difficult to standardize the collection of sediments on the basis of grain size. Sieving cannot be used to remove sand-sized or coarser materials without loss of volatiles. Therefore, samples will be taken of only silt or finer sized material on the basis of visual inspection by the sampler, and grain size measurements will be made on a split of the sample.

Comment:

Liquid waste sampling - the proposed intermediate compositing in bowls will effectively drive off any volatiles.

Response:

MDHES agrees. The samples will be composited by carefully placing the individual samples in a vertical glass cylinder so that the surface area for volatile loss is minimized, and taking a vertical composite sample from the cylinder after minimal stirring.

QA/QC Samples

Comment:

For a field blank accompanying groundwater samples, it's not sufficient to "pour water over the sampling equipment after decontamination." The protocol must specify that the blank will be collected by running deionized water through the pump and tubing used, or filling and decanting from the bailer.

Response:

MDHES agrees, and the Workplan will be modified accordingly.

Comment:

Why are there no plans to replicate solid samples? These will be much more heterogeneous than water samples. Unless many discrete samples are being taken from a smaller area, samples must be replicated at 10% or better.

Response:

Collocation samples will be taken at a rate of 1 in 10 to allow for determination of sampling precision.

Comment:

Add referee-laboratory samples for all matrices, at a frequency of 10%. These would best be done in conjunction with field duplicates.

Response:

Addition of these samples is normally a responsibility of the laboratory, not the sampling team, as part of their standard QA/QC procedures. Interested parties can request a copy of the laboratory's QA/QC procedure from Envirocon.

Sample Custody

Comment:

Provide a description of the sample custody procedures. Listing the entries on the chain-of-custody form is not sufficient. Will samples be secured when personnel are absent?

Response:

A brief description of custody procedures will be prepared. Normal custody procedures required that samples be secured when not in someone's immediate possession.

Sample Shipping

Comment:

Applicable DOT hazard class, or the method for determining it for each set of samples, must be given. Provide an SOP for sample shipping.

Response:

It is standard practice not to label shipping containers of environmental samples according to DOT hazard class because the characteristics of the samples are unknown. However, samples containing high concentrations of flammable material will be labeled as flammable, and if the material's characteristics are known, labels will be applied to the shipping containers if appropriate.

Air Monitoring

Comment:

This section is extremely confusing. It should be rewritten to make clear exactly what the procedures will be, when they will be executed, and under what conditions on-site operations will be modified or shut down. Will there be real-time monitoring during sludge handling? If not, how will unsafe conditions be identified? The current text on air monitoring is far from sufficient as an SOP.

Response:

MDHES is currently considering the need for additional air monitoring. This section will be revised to reflect these comments as well as any changes determined by MDHES. MDHES will require that BN submit for MDHES review and approval a sitewide air monitoring program.

Comment:

Sampling efforts at the Livingston site are, to a very great degree, targeted towards contaminants that are volatile, and present in trace concentrations. There is enormous potential for cross-contamination or the loss of contaminants from samples because of improper sampling and sample handling procedures. To protect sample integrity it is vital that very detailed, well-thought-out standard operating procedures be followed. The vague guidelines set forth in this section of the workplan are inadequate as SOPs for conducting this project. They are so general as to allow inexperienced, hurried or cold field personnel to compromise the integrity of nearly every sample. The existing descriptions of sampling, sample handling and shipping activities in this section should be replaced by a compilation of activity-specific SOPs. Each type of sampling should have an SOP detailing the steps of sample collection and handling, equipment decontamination, and instrument maintenance/calibration (if appropriate). There should also be SOPs for the creation of each type of field QA/QC sample, sample custody, and sample shipping. No field sampling should be conducted until rigorous, detailed SOPs are in place.

Response:

SOPs were a useful purpose where standard conditions are present and the same procedures can be used again and again without modification. Rather than use SOPs in this instance, a different approach will be used because of the varied conditions that will be encountered. BN will use experienced personnel to perform the investigations. Oversight of field activities will be performed by representatives of MDHES to ensure the sampling is performed properly.

SECTION 10: CORPORATE SAMPLING AND LABORATORY QA/QC PLAN

Data Quality Objectives

Comment:

Tabulate the proposed detection limits for solids and sludges. The laboratory needs to know these before processing the samples.

Response:

Detection limits for solid matrices are highly dependent on the matrix and compounds it contains. However, MDHES agrees that goals should be provided to the laboratory so that appropriate techniques can be employed. This section will be revised to present target MDLs.

Comment:

Data quality objectives for representativeness and comparability need to be added. These will be qualitative.

Response:

MDHES agrees. The DQO section of the Workplan will be revised following meetings between representatives at BN and MDHES.

Comments:

What are the DQOs for precision of the various types of data? Much greater precision is needed for, say, volatiles in groundwater than heavy metals in soil. Add quantitative precision goals for the total sampling system, including between-sample, not just laboratory precision. In most sample types, the major variation will be between samples; laboratory error will be a minor component.

Response:

Laboratory precision is controlled by the QA/QC plan for the laboratory. However, it is still difficult to impossible to prescribe precision requirements including field variability, because the natural variability is unknown. Instead, precision is determined from the analytical data, using replicate samples. Replicate samples will be analyzed at a rate of 1 to 10.

Comment:

A completeness goal of 95% (validated data) for low-level organics is unrealistic. Can the important questions be answered with a validated data set that is 75% or less of the planned data set?

Response:

MDHES believes that the program will answer the important questions, but reserves the authority to request that additional sampling be performed as necessary.

Sampling Procedures

Comment:

Extra soil and sludge samples stored in "airtight" plastic bags may lose some or all volatiles. On what grounds will reanalysis be specified? Will these materials be stored under refrigeration?

Response:

Reanalysis may be specified if a problem arises in the laboratory, such as would be caught by laboratory QA/QC procedures, or if the analysis seems to be inconsistent with other data. If holding time criteria have been exceeded, the data will be flagged. Materials will be stored under refrigeration until data validation has been performed.

Sample Custody

Comment:

Integrity of samples coded "D" or "BK" is in doubt. All QA/QC samples should be submitted to the laboratory blind, with ordinary sample numbers.

Response:

MDHES agrees. The procedure will be changed so that duplicates and blanks are received by the laboratory as if they were regular samples.

Data Reduction, Validation and Reporting

Comment:

Describe the data validation procedure step wise, in detail. How will outliers be flagged? How will flagged data be treated?

Response:

EPA methodology will be utilized for data validation procedure. A description of how outliers or flagged data elements will be included in the workplan.

Comment:

Laboratory data validation is only a small part of the total exercise.

Response:

MDHES agrees. Data validation will need to consider the results from analysis of travel and equipment blanks and field replicates.

Comment:

Who will be responsible for data validation? This will be a full-time job for the first year of the project.

Response:

Enviroçon is responsible for data validation. However, MDHES will perform random checks of the data to ensure validation is properly performed.

Performance and System Audits

Comment:

BN should commit to a schedule of both field and laboratory audits, to be conducted by a contractor or agency selected by MDHES. In the field, the auditor should insert performance evaluation samples into the sample train. Laboratory audits are needed to assure adherence to CLP protocols. These might be done by EPA's Environmental Monitoring Systems Laboratory, activated through an MDHES request to EPA.

Response:

Energy Laboratories is certified as a Safe Drinking Water Act laboratory for organic and inorganic compounds, and as such participates in the EPA round robin performance evaluation yearly. They are also audited by MDHES yearly. As part of their regular QA/QC, they analyze more than 10% laboratory duplicates, more than 10% matrix spikes, and reference samples within each set of samples analyzed. MDHES therefore believes that additional audits and performance evaluation samples are not necessary.

QA Reports to Management

Comment:

"The QA Officer will periodically audit field and laboratory operations and will report the findings to the Project Manager." According to foregoing text, this is one and the same person.

Response:

An independent QA officer will be assigned by Envirocon.

SECTION 11: HEALTH AND SAFETY PLAN

Not reviewed.

SECTION 12: SCHEDULES

Comment:

For each activity that will entail further planning or additional phases the schedule should show the break between phases, and MDHES review. Some schedules in this chapter do this, but others don't. Examples include: decision to install more monitoring wells, choice of private wells to sample, decision on continued metals or PCB monitoring in some wells.

Response:

MDHES agrees, and will work with Burlington Northern on a comprehensive long-term schedule.

Comment:

An overall project schedule is needed. Phases I and II of the remedial investigation, the feasibility study activities, the place of the risk assessment, and activities to be described in a future workplan or workplans should be shown.

Response:

MDHES agrees.

SECTION 13: SITE CHARACTERISTICS SUMMARY

Not reviewed.

GENERAL COMMENTS

The solvent plume has moved offsite, and groundwater concentrations of volatile organics beneath the residential neighborhood northeast of the site are not up to 50 ppb. There have been organic vapors at irritating concentrations in at least one basement in this neighborhood. A Basement Air Quality Survey task should be added to the RI. This task will involve:

1. consultation with the Fire Chief of Livingston concerning records of homeowner fume complaints

2. a questionnaire distributed among households in neighborhoods downgradient of the rail yard, addressing solvent or petroleum odors in homes

3. with MDHES concurrence, definition of a residential area to test, and

4. a survey of basements and crawl spaces in this area using a portable organic vapor detector.

Based upon early results, the survey will be expanded as necessary. This survey will be carried out quarterly for a year. At that time, MDHES will decide whether there is a need for further surveys.

Response:

Envirocon is preparing a Workplan to investigate organic vapor problems in off-site buildings. MDHES will take these recommendations into consideration when reviewing the workplan.